Annual report 2017

Connecting, extending and assuring the cloud

ADVA™ Optical Networking

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1 Welcome

We don't simply imagine the future. Through our technology, we're creating it. Our FSP 3000 OpenFabric™ is a key component of tomorrow's metro, providing instant scale for rapid innovation cycles.

Profile

ADVA Optical Networking is a company founded on innovation and driven to help our customers succeed.

For over two decades, our technology has empowered networks across the globe. We're continually developing breakthrough hardware and software that leads the networking industry and creates new business opportunities.

It's these open connectivity solutions that enable our customers to deliver the cloud and mobile services that are vital to today's society and for imagining new tomorrows.

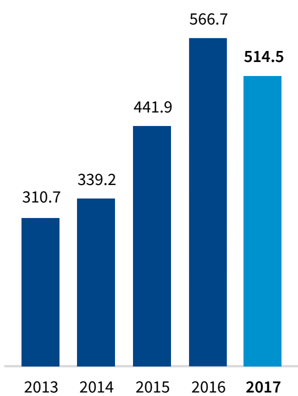
Together, we're building a truly connected and sustainable future.

Mission

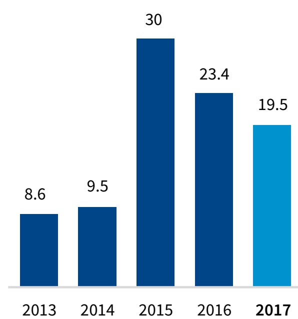
ADVA enables next-generation networks. The group's mission is to be the trusted partner for connecting, extending and assuring the cloud.

2017 key performance indicators

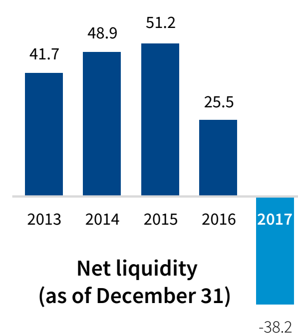
(in millions of EUR, except net promoter score)



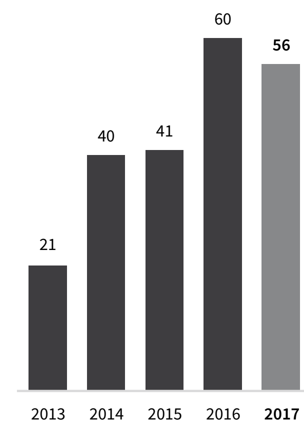
Revenues



Pro forma operating income[1]



Net liquidity (as of December 31)



Net promoter score (%)[2]

Financial KPIs Non-financial KPI

[1] Pro forma operating income is calculated prior to non-cash charges related to the stock compensation programs and amortization and impairment of goodwill and acquisition-related intangible assets. Additionally, non-recurring expenses related to restructuring measures are not included.

[2] The Net Promoter Score is obtained by asking customers a single question on a 0 to 10 rating scale: "How likely is it that you would recommend our company to a friend or colleague?" Based on their responses, customers are categorized into one of three groups: promoters (9–10 rating), passives (7–8 rating), and detractors (0–6 rating). The percentage of detractors is then subtracted from the percentage of promoters to obtain a Net Promoter Score.

ADVAntages

Focus on growth markets

- ADVA focuses on growth markets in the telecom space that have one thing in common: a strong and sustainable demand for innovative connectivity solutions.
- These markets are driven by the global megatrends “cloud” and “mobility” demanding more and better connectivity in all areas of the network.
- The total addressable market for ADVA was estimated to be USD 13 billion in 2017 and will, according to industry analysts, grow to USD 16 billion by 2021[3].

Trusted partner

- ADVA’s unique combination of innovation and speed has seen the group build close partnerships with customers, resulting in repeated purchases and strong cross-selling opportunities for its innovative networking solutions.
- As a trusted partner for two decades, ADVA provides high-quality solutions with lowest cost of ownership and best user experience.
- ADVA is led by a dynamic, international, experienced and highly motivated management team with many years of senior management background, making it a dependable partner when it comes to building long-term business relationships.

[3] Industry analyst estimates for metro and long-haul WDM equipment (“Optical”) and access switching & routing (“Ethernet”) relevant to ADVA Optical Networking. Sources: Ovum, Optical Networks Forecast 2016-2021 published in October 2017 and service provider switching and routing forecast 2016-2022, published in January 2017

Innovative connectivity solutions

- ADVA's industry-leading engineering force is exclusively focused on innovative connectivity solutions for cloud and mobile services, outperforming the engineering departments of other vendors in this space.
- Focus on innovation drives market success and has made ADVA the global leader for data center interconnect solutions for private enterprises with a market share of greater than 30%[4] and …
- … on of the top suppliers of metro data center interconnect solutions for internet content providers and carrier neutral providers with a market share of 12%[4].

Speed for customers

- ADVA has a strong track record of being first to market with new functionality that adds value for customers.
- A responsive team serves customers around the globe, with 50.1% of ADVA's 2017 revenues generated in EMEA (Europe, Middle East and Africa), 43.6% in the Americas and 6.3% in Asia-Pacific.
- ADVA's innovative networking solutions have been deployed by several hundred service providers and thousands of enterprises around the globe.

[4] Source: Ovum, market share report 3Q17 for data center interconnect, published in December 2017

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2017 business highlights

- Growth in Europe and new customer wins
- Breakthrough with Ensemble software solutions
- Acquisition of MRV Communications, Inc.

Customer achievements and awards

2017 was a year of mixed success. ADVA Optical Networking's solutions brought new efficiencies and revenue opportunities to enterprises in all industries. The company's scalable, highly efficient technology was also deployed in mission-critical service provider networks across every continent. And, with its Ensemble software architecture, ADVA was selected to become a part of Verizon's universal CPE solution. Here are a few of the highlights from the last 12 months:

January 2017
ADVA's Ensemble Connector wins TMC's NFV Product of the Year Award Software-based virtualization platform honored in Internet Telephony Awards for openness and simplicity
March 2017
Oscilloquartz synchronizes Orange Egypt's national network Complete timing solution enables next-generation LTE services
Exaring deploys ADVA FSP 3000 for unique cloud-based entertainment services Ultra-fast nationwide backbone enables instant access to high-quality TV
ADVA introduces direct detect open optical layer for ultimate DCI flexibility Expanded FSP 3000 CloudConnect™ platform now offers customers both complete and disaggregated solutions
Dobson Technologies selects ADVA fiber assurance solution in state-wide network ADVA ALM provides real-time, in-service link monitoring for improved performance and streamlined operations
April 2017
PSNC deploys ADVA 96-channel 100G core solution in pan-European research network ADVA FSP 3000 with ROADM technology connects Polish supercomputing center to CERN
SUNET deploys ADVA's 100G technology in national research and education network Scalable, open optical line system key to state-of-the-art multi-vendor transport solution
May 2017
Verizon adds Ensemble to its virtual network services uCPE solution Zero touch capabilities of Ensemble Connector deliver key agility and scalability
Ensemble SmartWAN wins Light Reading Award for Most Innovative NFV Product Strategy Open virtual SD-WAN platform applauded for removing limitations and providing choice

PSNC deploys ADVA FSP 3000 CloudConnect™ to drive 400G connectivity in research and education network
ADVA's transmission technology boosts capacity over 385km DCI network

Netnod powers new Optical IX service with ADVA's 400G DCI technology
Internet exchange operator takes peering in the Nordics to the next level with ADVA FSP 3000 CloudConnec™

June 2017

UCAR Deploys ADVA FSP 3000 CloudConnect™ Solution in Supercomputing Network
ADVA's DCI technology provides 200G connectivity to atmosphere research facility

July 2017

IRON deploys ADVA FSP 3000 in R&E network for cost-efficient scalability and ease of use
Institutions in underserved areas of Idaho to benefit from ADVA's 100G core technology

September 2017

FibreCo selects ADVA for flexible high-capacity connectivity services
Technology partnership addresses soaring bandwidth demand across South Africa

Ensemble Connector Wins 2017 Telecoms World Award
Innovation award recognizes software-based virtualization platform utilized in Verizon's uCPE service

October 2017

Municipality of Apex deploys ADVA ALM for comprehensive fiber monitoring
ADVA monitoring solution enables real-time fiber assurance for dramatically improved network performance

ADVA wins prize for best energy efficiency at SDN NFV World Congress
Network Transformation Awards recognize ADVA FSP 3000 for industry's lowest power consumption

Oscilloquartz synchronization solution wins BTR award at SCTE Cable-Tec Expo 2017
Broadband Technology Report judges honor industry's most agile timing toolkit with Diamond Technology Review Award

November 2017

T-Mobile Netherlands deploys Oscilloquartz synchronization solution in nationwide network
OSA 5420 Series delivers precise phase and frequency timing for next-generation network technologies

ADVA wins MEF 2017 award for risk-free NFV solution
FSP 150 ProVMe (P2.4) with pluggable server takes Carrier Ethernet 2.0 prize

Hetzner Online deploys ADVA FSP 3000 CloudConnect™ in response to huge growth in data demand
Upgraded national backbone network carries 400Gbit/s across Germany

Innovation and corporate events

In 2017, ADVA continued its mission to identify and develop new solutions for the cloud, always focusing on increasing simplicity, flexibility and efficiency. The race for better data center interconnect solutions drives the development of the company's Teraflex solution. The acquisition of MRV Communications, Inc. expanded the company's customer footprint and further strengthened its Network Edge portfolio. These were some of the supporting announcements:

February 2017
ADVA launches Hypervisor for optical network virtualization FSP Network Hypervisor is vital component to extend SDN into optical layer
ADVA adds new members to its Ensemble Harmony Ecosystem Industry's most comprehensive VNF portfolio now delivers even greater choice
ADVA's data security technology achieves German BSI approval ADVA FSP 3000 with embedded ConnectGuard™ encryption technology receives VS-NfD and NATO restricted security clearance
March 2017
EANTC tests confirm unique NFV benefits of ADVA FSP 150 ProVMe Edge device combines physical and virtual network functions for superior performance
ADVA unveils industry first with 600Gbit/s per wavelength DCI technology Expanded FSP 3000 CloudConnect™ platform delivers more choice, more scale and more flexibility than any competing solution
ADVA Optical Networking and Inphi demonstrate 100G direct detect solution for open DCI Systems OFC demo underscores the flexibility and cost efficiency of disaggregated technology for metro applications
April 2017
ADVA removes risk of NFV migration with new one network edge device ADVA FSP 150 ProVMe (P2.4) uses pluggable server for simple and cost-effective virtualization
May 2017
ADVA demonstrates industry-first 32G Fibre Channel transmission over 100km Field trial uses Brocade Gen 6 Fibre Channel technology and ADVA FSP 3000 CloudConnect™
Ensemble launches major upgrade to NFV platform Range of new features enables service providers to deploy uCPE, scale OpenStack and deliver software-based SD-WAN on cloud-native platforms
Oscilloquartz unveils synchronization solution to enable the small cell era Ultra-Compact OSA 5405 SyncReach™ features industry's only dual antenna GNSS technology for both indoor and outdoor deployment
June 2017
ADVA transforms the metro with new levels of flexibility, scale and synchronization Expanded FSP 3000 delivers several key technologies to power new era of metro networks

July 2017
ADVA enters into agreement to acquire MRV Communications, Inc. Strategic purchase will strengthen product portfolio and expand customer footprint

August 2017
ADVA completes tender offer for acquisition of MRV Communications, Inc. ADVA Optical Networking (FSE: ADV) announced today that a majority of the shares of MRV Communications, Inc. (NASDAQ: MRVC) were validly tendered and the other conditions to the tender offer have been satisfied

September 2017
Oscilloquartz enhances OSA 5420 series to deliver industry's most agile network synchronization toolkit Several major upgrades enable delivery of packet-based PTP in key new industries and applications

Interoperability and alliance partnerships

ADVA is a strong believer in the importance of open architecture and the value of cross-industry collaboration. In 2017, the company played a central role in several joint innovation projects. Here's a selection of relevant 2017 headlines:

February 2017
ADVA joins science-based targets initiative to tackle climate change Telecommunications vendor one of first companies committed to ambitious emissions reduction project
ADVA announces major customer engagements with Voyager white box solution Facebook-designed open optical packet transport system rapidly moves from concept to commercial testing

March 2017
ADVA and Corning showcase 100G direct detect solution for ultimate DCI efficiency OFC demo offers ICPs and CNPs cost-optimized connectivity with industry-leading reach

May 2017
Ensemble Orchestrator and Connector excel in NIA's NFV interoperability tests MANO solution and virtualization platform play key role in multi-vendor showcase

September 2017
Telefónica Germany uses ADVA FSP 3000 CloudConnect™ in 200G joint trial ADVA's OpenFabric™ technology creates simple, flexible optical cross-connect in live disaggregated network

2 Management board

Members and their backgrounds

ADVA Optical Networking is led by a dynamic, international, experienced and highly-motivated team. Leading, directing and managing the group's growth are four executive officers:

Brian Protiva, chief executive officer
Christoph Glingener, chief technology and chief operating officer
Ulrich Dopfer, chief financial officer
Scott St. John, chief marketing and sales officer

Brian Protiva,

Chief executive officer (CEO)
born in 1964

Bachelor of science in electrical engineering, Stanford University, USA

Brian Protiva co-founded ADVA in 1994. As the CEO, he is responsible for overall strategy, human resources, quality management and the company's services group. Under Brian's leadership, ADVA advanced to become a global market leader in Ethernet access devices and one of the top players in metro wavelength division multiplexing (WDM) worldwide. To date, ADVA's innovative networking solutions have been deployed in more than 10,000 enterprises and more than 300 carrier networks around the world. Prior to leading ADVA, Brian was managing director at AMS Technologies (now the EGORA Group), which he joined in 1987 and where he focused on co-managing its subsidiaries.

Christoph Glingener,

Chief technology officer (CTO) and chief operating officer (COO)
born in 1968

Ph.D. in electrical engineering, University of Dortmund, Germany

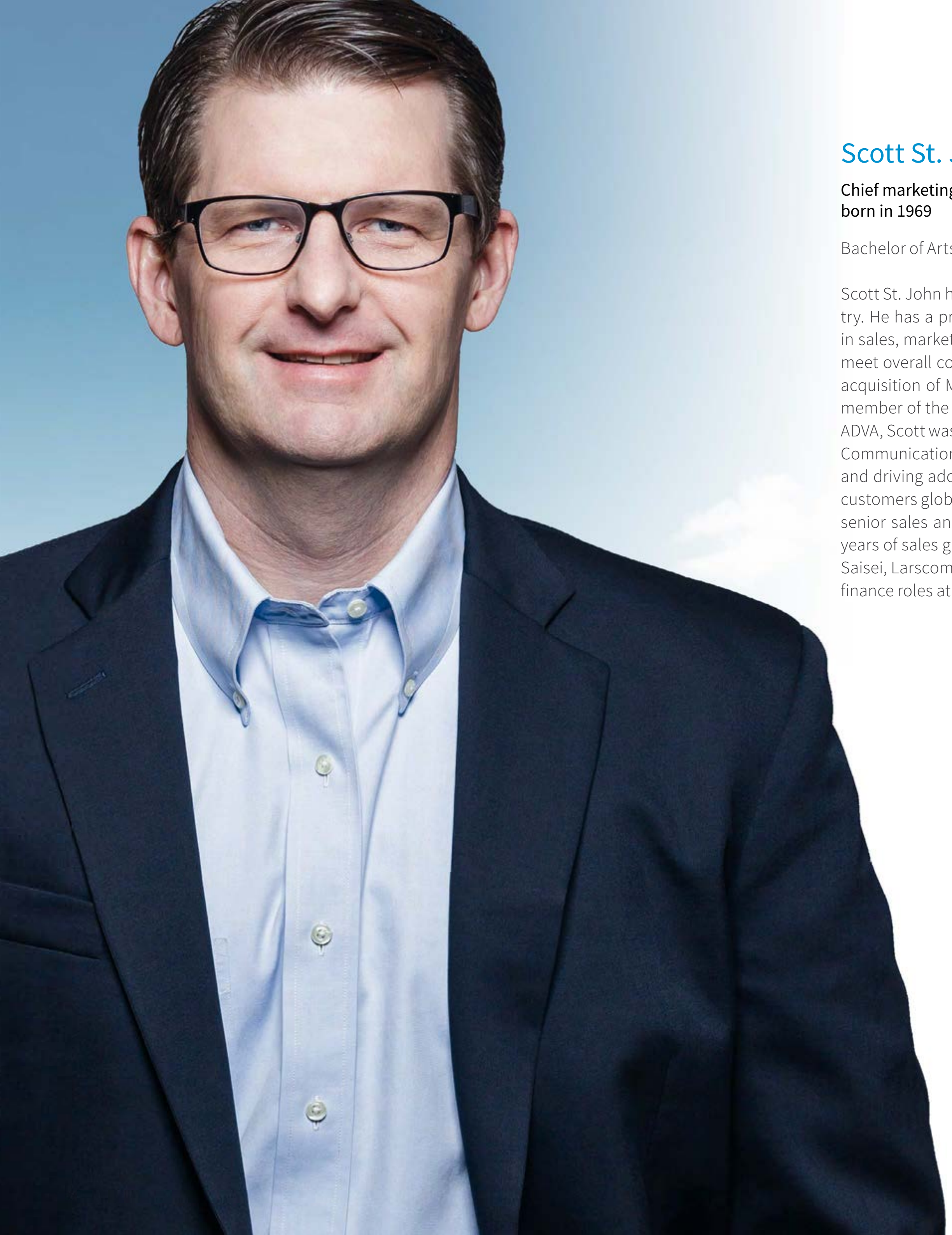
Dr. Christoph Glingener joined ADVA in April 2006, assuming responsibility for all global research and development activities and was appointed CTO in 2007. Since that time, he has also led ADVA's product management and advanced technology teams. Christoph has focused on streamlining ADVA's product portfolio, defining the product strategy and building the group's standing as a global innovator in optical networking. Strategic partnerships and mergers & acquisitions are an integral part of this strategy. Additionally, in January 2015, Christoph took on responsibility for global operations, enabling ADVA to integrate research and development, new product introduction and global operations into a unified development operations team. Christoph's activities at ADVA build on a long and successful industry career with experience gained in both academic and corporate roles. These include leading positions at Marconi Communications (now Ericsson) and Siemens Communications (now Coriant).

Ulrich Dopfer,

Chief financial officer (CFO)
born in 1973

Graduate in business administration, Verwaltungs- und Wirtschaftsakademie Munich, Germany

Ulrich Dopfer joined ADVA in March 2004 and led the group through some key financial initiatives taking on increasing responsibility over time. In 2006 Ulrich moved to Norcross, Georgia, where he is still based today. Prior to his appointment as CFO in January 2015, Ulrich served as vice president of financial planning & analysis and corporate services where he strategically optimized major processes, systems and support infrastructure, enabling ADVA to maintain the right balance between vision and execution. Combining his operational expertise with his vast financial skills and strong leadership style, Ulrich provides ADVA with the ability to flexibly steer the group in a volatile high-growth environment, to ensure profitable growth. In addition to his CFO role, Ulrich was appointed president of the company's North American subsidiary in January 2015, assuming full legal responsibilities for the region. Ulrich's activities at ADVA build on more than 20 years' experience of designing and implementing financial reporting, performance measurements, policies and standards to maintain strong internal controls in corporate roles including positions at ESCADA AG and FJH AG.



Scott St. John,

Chief marketing and sales officer (CMSO)
born in 1969

Bachelor of Arts, economics, Syracuse University, USA

Scott St. John has spent over 25 years in the network technology industry. He has a proven track record of building high performance teams in sales, marketing and customer service, as well as driving strategy to meet overall corporate goals. Scott joined ADVA in 2017, as part of the acquisition of MRV Communications, and was appointed CMSO and a member of the management board in October 2017. Prior to his role at ADVA, Scott was senior vice president of global sales and service at MRV Communications since 2014, re-structuring the sales and service teams and driving adoption of new packet and optical platforms by over 175 customers globally. From 2004 to 2013, he served Overture Networks in senior sales and service leadership roles, delivering nine consecutive years of sales growth. Scott has also held sales leadership positions at Saisei, Larscom and VINA Technologies, as well as sales, marketing and finance roles at Lucent Technologies and AT&T.

Letter to shareholders

Dear shareholders and friends,

The results we announced for 2017 were not the results we set out to achieve at the beginning of the year. On the one hand, the global megatrends cloud and mobility, as well as the accompanying digitalization of society, did increase the demand for bandwidth in communications networks. On the other hand, there were two customer-specific events in North America, which negatively affected us in 2017. In Q3 2017, a powerful internet content provider substantially reduced its orders compared to the previous year. Shortly after, still in the third quarter, a large telecommunications network operator significantly lowered its order volume due to a merger. ADVA was one of several manufacturers impacted. Unfortunately, we were not able to compensate for these two significant events in the remaining months of the fiscal year. However, we did react promptly to the new boundary conditions by adjusting our cost structure and returning to growth and profitability in the fourth quarter.

Innovation and patience

The internet of things, the digitalization of the global economy and the preparation for the fifth generation of mobile technology all require a robust and scalable telecommunications infrastructure with more fiber-based information superhighways, new models for providing communication services and more accurate network synchronization.

In recent years, we have precisely addressed these aspects by making investments that are strategically important for the future of networks. Some of these investments are already bearing fruit; others need some patience:

- Our FSP 3000 CloudConnect™, an extension of the FSP 3000 platform specifically designed to interconnect large data centers, is setting new standards in open optical transmission technology. The market launch came later than planned and revenue contribution in 2017 fell short of expectations. Meanwhile, however, we have overcome our technical difficulties and we are winning new customer footprint with the product.

- Our software solutions to deliver virtual network functions – derived from our acquisition of Overture in 2016 – have moved from the trial phase to commercial implementation. Verizon, one of the largest network operators in the world, has selected our Ensemble Connector for its universal customer premise equipment solution. Other telecommunications providers are pursuing similar concepts. However, commercial rollout by service providers is still progressing very slowly.
- In less than three years, we have completely renewed our synchronization portfolio from Oscilloquartz, which became an integral part of the ADVA family in 2014. Our Oscilloquartz technology is now leading the industry. In 2017, we were able to win numerous tenders that will drive strong revenues in 2018.

An acquisition with lots of potential

Following the acquisitions of Oscilloquartz in 2014, and Overture in 2016, we have continued to consolidate the market. With the 2017 acquisition of our US rival MRV, we now have more customers, better revenue diversification and a broader solutions portfolio than ever before. The synergy effects are significant, and this takeover will be immediately accretive in 2018, reflecting positively upon our numbers. What's more, by appointing one MRV executive, Scott St. John, to our board, we have a strengthened management team, which will successfully bring our international growth strategy to fruition. The stock markets punished us for the two customer events in the third quarter and the share price decline was painful. Nonetheless, I feel that the potential of the MRV acquisition has not been fully appreciated. Our goal is to close that gap in understanding and correct our disappointingly low market capitalization. The boundary conditions are promising.

Positive prospects for the future

Against the backdrop of a strong global economy and an accelerating pace of digitalization, the prerequisites for a positive customer demand cycle look good. The big growth drivers cloud and mobility are intact. At the same time, consolidation in our industry has further reduced the number of competitors. Regionally, we were able to increase sales in Europe in 2017. We now see ourselves in a strong position in this region as the remaining specialist for innovative transmission technology.

In our twenty-four-year history, we have had a few setbacks. However, these were mostly short-lived. In 2018, we will have more customers, fewer competitors, a broader solution portfolio and a stronger team than ever before. We have adjusted and optimized our cost structure to the new revenue profile. The dollar weakening against the euro improves our margins. We will return to revenue growth and increase our profitability. The investments of the past years, listed below, will help us on this journey:

- A new architecture for programmable, open, optical networks
- An extended customer base for cloud access solutions that we can now serve with a differentiated NFV software architecture
- Technology leadership in network synchronization and increasing presence among large network operators

Finally, I want to emphasize that we have not only invested in technology, but also in people – and we will continue to invest. It is our people, who – thanks to their knowledge, creativity and dedication – make ADVA a trusted partner for innovation and reliability. I thank our dedicated employees for their consistent and valuable services. The combination of their diverse knowledge and skills has made ADVA a strong company with bright prospects for the future. In times of cloud and mobility, expertise in the areas of connecting, extending and assuring the cloud is strategically significant and valuable. ADVA Optical Networking is the leader in this field.

February 20, 2018

Brian Protiva
Chief executive officer

3 Supervisory board

Members

ADVA Optical Networking's supervisory board consists of a diverse and international group of seasoned experts in their respective fields:

Nikos Theodosopoulos - chairman
Chairman since January 9, 2015, member since 2014

- Chairman of the compensation and nomination committee
- Member of the audit committee
- Founder and managing member of NT Advisors LLC, Manhasset, New York, USA

Johanna Hey - vice chairwoman
Vice chairwoman since June 4, 2013, member since 2011

- Chairwoman of the audit committee
- Professor for tax law, University of Cologne, Cologne, Germany

Hans-Joachim Grallert - member
Member since 2016

- Member of the compensation and nomination committee
- Prof. em. Dr.-Ing.

Report of the supervisory board

In 2017, the supervisory board once again performed its duties under the law and the company's articles. It carefully and continuously monitored the management board and supported it in all strategic matters. The supervisory board has been directly involved in the early stages of all important strategic decisions of the company. During a total of six ordinary meetings, in which all members of the supervisory board and the members of the management board regularly participated, the management board consistently, promptly and extensively informed the supervisory board about the business situation of the company and the group. In particular, the supervisory board was informed on matters regarding strategic orientation, market development and prospects for growth, as well as on the development of net assets, financial position and profitability, including budgeting, investments, personnel, compliance, internal audit and risk management. The supervisory board extensively discussed all important business issues on the basis of the management board's reports. Any deviations of the actual business development from the group's plans and objectives were thoroughly explained by the management board and reviewed by the supervisory board. The supervisory board gave its approvals to all important decisions, after thorough examination and consultation, where required by law or the company's articles and acting in the best interest of the company and the group. In addition to the six ordinary supervisory board meetings, the supervisory board held, including the constituent meeting immediately after the annual general meeting on May 17, 2017, four extraordinary supervisory board meeting in which the acquisition of MRV Communications, Inc., as well as the appointment of Scott St. John as member of the management board have been topics. Furthermore, on urgent matters resolutions were passed outside of meetings during the year. Moreover, especially the chairman and the vice chairwoman of the supervisory board maintained regular contact with individual members of the management board outside of scheduled meetings and were kept up-to-date with respect to current business developments, important transactions and forthcoming decisions.

Main management board activities covered and examined by the supervisory board

In 2017, as in the prior year, the supervisory board focused mainly on the business development and strategic direction of the company and the group, particularly its revenue, earnings and headcount development, and ADVA Optical Networking's financial situation. In this context, new opportunities for revenue growth and the development of margins were discussed.

The supervisory board closely monitored and supported the activities of the management board, including discussions on mergers and acquisitions, and approved the acquisition of the US-based MRV Communications, Inc. It discussed the group's organization and key business processes with the management board and assured itself of the efficiency of this organization and these processes. The management board submitted to the supervisory board all transactions and decisions requiring approval according to the company's articles. The supervisory board approved all such transactions and decisions.

Committees

In order to perform its tasks efficiently, the supervisory board continued to maintain two committees during 2017, the audit committee and the compensation and nomination committee.

Members of the audit committee were Johanna Hey (chairwoman) and Nikos Theodosopoulos, members of the compensation and nomination committee were Nikos Theodosopoulos (chairman) and Hans-Joachim Grallert.

The audit committee held five meetings during the reporting period, in which all members regularly participated. In addition to reviewing the consolidated annual and three quarterly financial statements and group management reports as well as the company's annual financial statements and management report, the audit committee discussed the financial position and performance of the group, the appointment of the external auditor, the audit scope for 2017, the development of tax positions and risks, internal audit activities, as well as the effectiveness of the internal controls related to financial reporting and of the risk management system.

The compensation and nomination committee sat two times during the past year. The committee's discussions focused in particular on the remuneration and the contract extensions of the chief officers.

Reports on the work of the supervisory board committees were regularly presented and discussed during the subsequent supervisory board plenary meeting.

Corporate Governance Code

The supervisory board welcomes the German Corporate Governance Code and supports its objectives. The supervisory board has agreed to comply with most of the recommendations and proposals of the Corporate Governance Code within the ADVA Optical Networking organization. In its meeting on November 15, 2017, the supervisory board and the management board discussed deviations from the Code and jointly approved an updated declaration of compliance in accordance with section 161 of the German Stock Corporation Law (Aktiengesetz, AktG). This declaration is published on the group's website and is accessible for all shareholders.

Annual financial statements and management reports

ADVA Optical Networking's consolidated annual financial statements for the year ended December 31, 2017, and ADVA Optical Networking SE's annual financial statements for the year ended December 31, 2017, as well as the group management report and the management report of ADVA Optical Networking SE for the fiscal year 2017 were audited by the company's appointed auditor for 2017, PricewaterhouseCoopers GmbH Wirtschaftsprüfungsgesellschaft, Munich, who issued unqualified audit opinions. Pursuant to section 315e of the German Commercial Code (Handelsgesetzbuch, HGB), the consolidated annual financial statements have been prepared according to International Financial Reporting Standards (IFRS) as enacted in the EU. All management letter points issued by the auditor were taken up, discussed with the management board, and their consideration was ensured.

All relevant accounting documents, financial reports and audit reports were submitted to the supervisory board members prior to the meeting of the supervisory board dealing with the company's and group's 2017 financial statements. On February 15 and 19, 2018, these documents were discussed and examined in detail jointly by the audit committee and the auditor and in consideration of the auditor's long-form report. The audit committee reported its findings to the entire supervisory board in its meeting on February 20, 2018. Furthermore, the auditor, who was present in all three meetings, reported on the material results of the audit, explained net assets, the financial position and the results of operations of the company and the group, and was available to answer additional questions from the members of the supervisory board.

In view and consideration of these audit reports and on the basis of the additional information provided by the auditor, the supervisory board discussed and examined in detail the financial statements and management reports in its meeting on February 20, 2018. It unanimously approved ADVA Optical Networking SE's annual financial statements and management report, as well as ADVA Optical Networking's consolidated annual financial statements and group management report. The annual financial statements of ADVA Optical Networking SE for the fiscal year 2017 are thereby adopted.

Changes within the management and supervisory boards

The term of office of all members of the supervisory board ended with the annual general meeting on May 17, 2017; the annual general meeting re-elected all three members of the supervisory board until the end of the annual general meeting that will decide upon their discharge for the financial year 2021. In the constituent meeting subsequent to the annual general meeting, the audit committee as well as the compensation and nomination committee have been re-established in the previous staffing.

In its meeting on February 20, 2018, the supervisory Board approved the proposals of the compensation and nomination committee to re-appoint Brian Protiva, Christoph Glingener, Ulrich Dopfer and Scott St. John as members of the management board until December 31, 2019. It was agreed that corresponding contractual provisions would be superimposed with the individual members of the management board in writing.

The supervisory board would like to express its appreciation for the personal dedication, performance and the ongoing commitment of the management board and all employees of the company and the group during 2017.

February 20, 2018
On behalf of the supervisory board:

Nikos Theodosopoulos
Chairman of the supervisory board

4 The ADVA Optical Networking stock

Our ConnectGuard™ technology provides total peace of mind for businesses. And, by delivering low-latency encryption over all types of network, it also opens up a world of new possibilities for service providers.

Kink in sales growth and a profit warning in Q3 lead to significant share price reductions

2017 was a challenging year for ADVA Optical Networking. After some solid revenue growth at the beginning of the year, the weak outlook for the third quarter and the associated kink in the company's long-term growth curve led to the first significant share price reductions in July. Later in Q3, there were further unexpected declines in sales to a major customer so that, despite the already weak outlook for Q3, the company had to lower the guidance further on August 28. Subsequently, the share price continued to decline. Despite positive news, such as the acquisition of US rival MRV Communications, Inc. and restructuring measures initiated, the stock only recovered slightly from the turmoil of the third quarter and closed on December 31, 2017 at levels just above EUR 6. Thus, over a three-year perspective, the share price still recorded a gain of more than 100%. However, for the fiscal year 2017, ADVA Optical Networking shares were among the weakest in the TecDAX (nearly +40%) with a loss of about 22%.

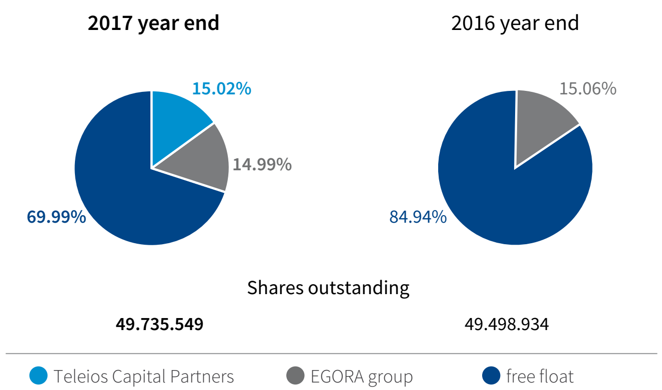
Nominal share capital as of December 31, 2017: EUR 49,735,549

On December 31, 2017, the company's nominal share capital totaled EUR 49,735,549, an increase of EUR 236,615 compared to December 31, 2016. The higher share capital is fully attributable to the issuance of ordinary shares from conditional capital following the exercise of employee options throughout 2017. The shareholder structure of ADVA Optical Networking at the end of 2017 looked as follows: free float equaled 69.99%, including 0.8% of outstanding ADVA Optical Networking stock held directly by members of the management and supervisory boards. EGORA Group, previously the sole major shareholder of the company, held 14.99%. In 2017 a second large shareholder came on board. The hedge fund Teleios Capital Partners increased its position in ADVA a few times throughout the year and held 15.02% at the end of the year. Compared to the end of 2016, the free float of 84.94% decreased to 69.99%. During the year, the company did not utilize the share buyback authorized at the Annual Shareholders' Meetings in June 2010 and May 2012.

Stock information[1]

Trade name	ISIN DE0005103006/WKN 510300
Symbol	ADV
Exchange	Prime Standard Segment Frankfurt Stock Exchange
Sector	Technology
Industry	Communications Technology
Number of shares outstanding at year-end 2016	49,735,549
2017 high/low price	EUR 10.94/EUR 4.37
2017 year-end price	EUR 6.04
2017 year-end market capitalization	EUR 300.40 million
2016 year-end price	EUR 7.72
2017 share price performance	**-21.76%**

Shareholder structure



[1] Price information is based on Xetra closing prices.

Record revenues in fiscal year 2016 and a solid first quarter 2017

The ADVA Optical Networking share started the 2017 trading session at just under EUR 8. On February 23, the company announced record revenues for the past fiscal year 2016 and issued a positive outlook for the current first quarter of 2017. This added to the confidence that, after the record years of 2015 (revenues +30%) and 2016 (revenues +28%), 2017 could also be another strong year for the company. Shortly before the release of the Q1 figures on April 27, the stock reached its high for the year and even briefly touched the value of EUR 11.

With the release of the strongest first quarter in the company's history, ADVA once again met guidance. The outlook for Q2, however, lagged slightly behind market expectations. Although a further, moderate increase in sales was predicted compared to Q1 2017, the outlook was below the actual numbers of Q2 2016. For the first time in 12 quarters, a decline in revenues compared to the year-ago quarter was forecast. This represented a first break in the company's growth curve, which had been intact for many quarters. The share price fell well below the EUR 10 mark in the second quarter.

MRV acquisition, profit warning and restructuring measures in the third quarter

On July 2, ADVA announced its intention to acquire US rival MRV Communications, Inc. This announcement was initially received neutrally by the market. However, shortly thereafter, the quarterly figures published on July 20 caused some turbulence. While sales and profitability for the past Q2 were within guidance, the outlook for the third quarter disappointed. A major internet content provider customer had significantly reduced its orders. The related decline in revenues could not be compensated by other customers. When, towards the end of August, management realized that the reduction in order volume would become even more pronounced than initially anticipated, and another major customer in a merger transaction would also massively reduce its orders, ADVA had – for the first time since 2008 – to lower the guidance for the current quarter. The ad hoc announcement on August 28 led to another price decline, which briefly depressed the value of the stock close to the EUR 4 mark. As part of the ad hoc announcement, immediate restructuring measures were announced in order to quickly adapt the company's cost structure to the new revenue situation.

While the acquisition of MRV, successfully completed on August 14, initially increased the complexity of the third quarter, ADVA made rapid progress in integrating the new business components, posting first positive results in just a few weeks. An expanded customer base, which can now be served with a more powerful and broader solution portfolio, initial cross-selling successes of ADVA solutions with existing MRV customers and good progress in consolidation of sites and teams, allowed for a positive outlook for the fourth quarter of 2017. The release of third-quarter results on October 26 included an outlook that forecast a quick return to profitability and moderate growth.

Share price recovers slightly and closes with EUR 6.04 on December 31

The stock recovered slightly towards the end of 2017, closing the year at just over EUR 6. With a market capitalization of EUR 300.40 million on December 31, 2017, the valuation of ADVA was very low.

Price development 2017 comparison (in %, indexed)

* Peer group data are calculated with the arithmetic average of Ciena, Cisco, and Infinera stock prices

Investor relations review

Investor relations work was driven by the following priorities in 2017:

- Revenue reduction for two major customers and competitive pressure in the market for internet content providers
- MRV acquisition, restructuring and expansion of customer base
- Intensive roadshow activities and direct investor communications, focusing on Europe and the US

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Digitalization, innovation and fierce competition

The worldwide bandwidth demand in communication networks continues to grow rapidly. The megatrends cloud and mobility require a rapid and sustainable expansion of the network infrastructure. ADVA Optical Networking's portfolio of optical transmission technology, network access solutions with virtualization technology and synchronization technology, exclusively features key technologies that are of strategic importance to the digitalization of society. This contrasts with high R&D expenses, short innovation cycles, competitive pressure and tough price wars. In this field of tension, the market for the network equipment industry in 2017 only saw small growth in a few select niches and geographical regions.

More than 270 investor meetings

In order to meet investors' demand for information on current market developments and their impact on ADVA, the company has further intensified its investor relations work. A total of six roadshows (2016: 10) were held in Helsinki, Copenhagen, Zurich, London, Madrid and Warsaw, as well as over 270 one-on-one meetings (2016: 160). ADVA presented itself to institutional investors at a total of 14 investor conferences (2016: six), including cross-industry conferences and technology-focused events. These conferences were organized by Berenberg / Goldman Sachs, Commerzbank, Deutsche Bank, Jefferies, Liolios, Needham, Northland Capital Markets and Oddo BHF.

Publication of 44 press releases

In addition, with a total of 44 press releases, three quarterly reports and regular conference calls, the financial community was kept informed about any significant developments within ADVA. Further, throughout the year, the company continued to provide comprehensive and up-to-date information relevant to the financial community on the investor relations pages of its website at www.advaoptical.com, including full transcripts of archived conference calls.

At the end of 2017, five financial analysts (end of 2016: five) provided research coverage of ADVA Optical Networking's stock.

Financial analyst coverage

(as of December 31, 2017)

Institution	Financial Analyst Name	Location
Oddo BHF	Felix Lutz	Frankfurt am Main, Germany
Deutsche Bank	Rob Sanders	London, England
Hauck & Aufhäuser Research	Robin Brass	Hamburg, Germany
LBBW	Mirko Maier	Stuttgart, Germany
Northland Capital Markets	Tim Savageaux	Minneapolis, USA

Increasingly good liquidity

Entry of a second major shareholder reduces free float to approximately 70%

Overall trading liquidity in ADVA Optical Networking's shares increased further, significantly beyond 2016 levels. Investor interest in the network equipment industry in connection with the digitalization of society and the dynamics of the internet economy (cloud) continue to drive high liquidity. The average Xetra trading volume was at 580 thousand shares per day during 2017, following 405 thousand shares per day during the previous year. Due to the entry of the hedge fund Teleios Capital Partners, the free float fell to levels of approximately 70%.

All agenda items at shareholders' meeting approved by a majority

The annual shareholders' meeting took place on May 17, 2017, in Meiningen, Germany. All items on the agenda were approved by a majority, including the re-election of the three supervisory board members. Furthermore, the annual shareholders' meeting appointed PricewaterhouseCoopers GmbH Wirtschaftsprüfungsgesellschaft as the auditor for the 2017 financial results.

Investor relations contact

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5 Business overview

Empowered Edge™

The network edge is now the cornerstone of service innovation. With our unique family of edge and aggregation devices, we're empowering our customers to rapidly respond to new demands.

Mission

Trusted partner for open connectivity solutions

ADVA Optical Networking develops next-generation networking technology that enables the creation of high-performance cloud and mobile services. Its mission is to be the trusted partner for connecting, extending and assuring the cloud.

Technology

ADVA Optical Networking develops, manufactures and sells networking solutions for a modern telecommunication infrastructure. Its products are based on fiber-optic transmission technology combined with Ethernet functionality and intelligent software for network management and virtualization. Furthermore the portfolio includes timing and synchronization solutions for networks.

Optical

Wavelength division multiplexing (WDM) multiplies the transmission capacity of fiber

Fiber is the optimum physical medium to transmit large amounts of data over long distances. The bandwidth-over-distance capabilities of fiber by far exceed those of any other physical medium such as copper or wireless technologies. Therefore, fiber-optic transport is the unchallenged foundation for all high-speed networks. ADVA Optical Networking's optical transmission solutions are based on wavelength division multiplexing (WDM) technology. With WDM, multiple data streams are transmitted simultaneously over a single optical fiber by assigning each stream to a different wavelength (i.e. color) of laser light. Every wavelength (more than 100 in total) can carry a different application such as voice, video, data or storage traffic. Combining (i.e., multiplexing) these wavelengths at one end of the fiber, transmitting them over distance and then separating (i.e., de-multiplexing) them at the far end multiplies the fiber capacity and makes transmission more efficient. WDM supports all data protocols and transmission speeds, and is a natural foundation for all high-capacity networks.

Ethernet

Ethernet is the dominant data-link protocol for advanced networks

Ethernet is the dominant data-link protocol for today's networks supporting a multitude of communication applications. ADVA Optical Networking provides Ethernet-optimized transmission solutions for fiber-based networks used to interconnect enterprises and mobile network base stations with carrier networks. Ethernet is also one of the key protocols used to carry applications in high-speed optical networks for data backhaul and the interconnection of routers (see "Optical" above).

Software

Software to manage networks and virtualize networking functions

The importance of software in networking technology is increasing rapidly. On the one hand, network operation is automated by means of intelligent software, which increases user friendliness and simplifies network control and maintenance. On the other hand, more and more network functions are virtualized (network function virtualization, NFV). With NFV, the tight coupling between hardware and software in network elements is dissolved, and individual network functions can be developed and provided independently of the underlying hardware. The acquisition of Overture in 2016 significantly expanded the technology portfolio of ADVA Optical Networking in the area of NFV software.

Synchronization

Accurate timing and synchronization become increasingly important in telecommunications networks

Reference sources that deliver stable frequency and time-of-day information are crucial to the effective transmission of digital signals. Especially in mobile networks, the availability of highly accurate synchronization and timing information is crucial for best end-user experience. With a complete end-to-end solution portfolio sold under the Oscilloquartz brand, ADVA Optical Networking can offer a smooth evolution across multiple generations of synchronization technologies.

Innovative connectivity

The combination of fiber-optic transmission technology and Ethernet-optimized data processing, complemented by intelligent management and virtualization software, is an ideal solution to deliver high-speed connectivity for data, storage, voice and video applications.

ADVA Optical Networking creates innovative connectivity solutions from inception through manufacturing and into service. The following paragraphs describe important market dynamics that drive growth for the Group's business.

Market, target customers and growth drivers

Growth drivers: cloud and mobility

ADVA Optical Networking's addressable market encompasses several applications for optical transmission technology, packet-based access technology and solutions for network function virtualization and synchronization of geographically dispersed systems. The demand for the group's solutions is driven by the rapid digitization of society. The global megatrends "cloud" and "mobility" are fueling a relentlessly growing demand for universally available bandwidth. Within the market, ADVA deals with different customers and target groups that are described in the following paragraphs.

Cloud – the age of the data center

The internet has profoundly changed the world. We are in the middle of a global transformation process that redefines the characteristics of our society, the way we interact and the way we work. Access to information, regardless of its specific nature, has been accelerated by many orders of magnitude. Things have become a lot more transparent – and global. Not a day goes by without a new idea being born, creating new business in our digital economy.

Data centers – the cornerstones of today's networked society

The basis for the rapid development of our digital society is a powerful communications network that spans the globe. This network is highly available and provides fast access to a wide range of data and applications. The cornerstones of this network are data centers equipped with gigantic server farms and large capacity for data storage. These data centers are in turn connected by high-performance, fiber-based communication networks that enable data exchange between the sites and provide enormous transmission bandwidth.

There are different actors that perform an important role in the interconnection of data centers (data center interconnect, DCI) and the provision of the required transmission capacity. All of these actors have their own requirements and collectively define ADVA's addressable market for that application.

Data center interconnect for large enterprises

Loss of mission-critical data and application downtime are a big threat to enterprises

In a digitally networked world, enterprises depend more than ever on the integrity of their data and the availability of digital resources. There is a growing need to develop more reliable and efficient IT infrastructures, which not only protect against data loss, but also ensure that all processes run smoothly and at all locations. The loss of mission-critical information is a big threat to enterprises. System failures can result in idle staff, damage to reputation and, ultimately, lower revenues.

Geographically dispersed business continuity solutions provide maximum protection

Due to the criticality of data and application availability, many large enterprises, research and educational institutions as well as health care providers have gone down the path of operating their own data centers connected via private fiber optic networks. Such private enterprise networks purely serve the business processes of an individual company or organization and offer a high degree of security and control. The network operation is either in the hands of the in-house IT department, or a specialized IT or communication service provider. The private IT infrastructure (private cloud) is often complemented by a partial outsourcing of less critical functions and data in external data centers, operated by a third party (public cloud). Such a hybrid scenario (hybrid cloud) has already been implemented in many places and will continue to spread rapidly in the corporate world.

Market-leading position for data center interconnect with Fortune 500 enterprises

ADVA has over 20 years of experience in the development and deployment of innovative transmission technology for data center interconnect. Many major companies from the so-called Fortune 500 league rely on ADVA's transmission technology for their business continuity and disaster recovery applications. ADVA offers a highly innovative product feature set in this market segment. The ADVA FSP 3000 supports native transmission for all data center protocols, guarantees low latency and provides additional security through the company's ConnectGuard™ encryption technology. Furthermore, ADVA has built a strong partner landscape supporting the go-to-market process.

Data center interconnect for internet content providers

Internet content providers inject additional growth opportunities for optical transmission solutions

Internet content providers (ICPs) are companies whose principal business is the creation and dissemination of digital content. The ICP community includes, for example, large internet companies such as Apple, Amazon, Facebook, Google, HP, IBM and Microsoft. These companies operate data centers of enormous proportions and are often referred to as a "hyper-scale" or "cloud-scale" operators. ICP data centers contain huge server farms. The main asset of an ICP is its digital content and the associated services.

The ICP community is focused on innovation, has much experience in developing software and a pronounced do-it-yourself mentality. ICPs' main objective is optimizing costs and strengthening the performance of their portfolios. For wide-area connections between their data center sites, they mainly resort to leased lines from CSPs. However, there is a trend toward more and more scenarios where ICPs rent dark fiber and equip it with their own transmission technology. Because of their size and purchasing power, ICPs are not only a relatively new, but also interesting target group in the market for optical transmission equipment, promising high growth potential.

The ADVA FSP 3000 CloudConnect™ – highest performance for internet content providers

ADVA, thanks to its extensive experience in the field of data center interconnect for enterprise networks, offers many compelling product features and solutions for DCI applications (see previous section). Furthermore, the company developed a new version of the FSP 3000 platform specialized for the ICP community. The ADVA FSP 3000 CloudConnect™ further enhances fiber utilization and takes key performance parameters such as space and power efficiency to a new level. Thus the platform delivers a highly compelling feature set for interconnecting hyper-scale data centers in the ICP. ADVA's highly agile and innovative corporate culture makes the company an attractive partner for the ICP target group.

Carrier infrastructure

Carriers are companies that are in the business of building and operating large-scale networks that they use to offer communication services to end-users or other CSPs. Besides the demand from businesses and ICPs for data center interconnect capacity, it is foremost the increasing bandwidth demand of private households is challenges carriers, increasing the pressure to expand their network infrastructure. Drivers of bandwidth growth are mainly mobile devices, as well as the increasing number of networked devices through the internet of things (IoT). According to forecasts by Gartner Research, more than 11 billion devices worldwide will be connected by 2020. Carriers have a key role to play in digitizing society.

Video-streaming, social networks and cloud applications continue to drive bandwidth demand in residential households to unprecedented levels

The rapid growth of video-on-demand offerings from so-called "over-the-top" providers like Netflix or Amazon Prime is creating huge traffic loads in carrier networks. In order to guarantee good signal quality, carriers need to deliver several Mbit/s of bandwidth per household. Building and operating a network that delivers such capacity is no trivial task. Moreover, due to the adoption of higher resolution video standards and 3D technology, bandwidth demand will continue to grow relentlessly for the foreseeable future. The first examples of so-called gigabit cities have emerged, where the available bandwidth per household reaches 1Gbit/s. This is more than a factor of 20 higher than the bandwidth required for a traditional broadband service. Hence, a network node that serves households in a gigabit city handles 20 times the bandwidth of a comparable site in a traditional broadband network.

Carriers use a mix of different technologies in the access network

There are several ways for service providers to deliver broadband connectivity to their customers. Traditional telecommunications companies often rely on digital subscriber line (DSL) technology to increase the capacity of their access lines (i.e., twisted pairs of copper wires), which are typically available to every household. Coaxial cables are a good alternative, typically owned by cable TV companies that are expanding their offerings to become multiple service operators (MSOs). New initiatives for fiber-to-the-home (FTTH) or fiber-to-the-building (FTTB) are rolling out, providing the ultimate bandwidth pipe. Last but not least, there are wireless technologies in the mix. Currently the fourth generation (4G) of mobile network technology is being deployed, based on the so-called Long Term Evolution (LTE) standards. The fifth generation (5G) is already on the horizon. All these access technologies deliver significantly higher bandwidth per end user than legacy technology.

Fiber is moving closer to the end user

For carriers, the challenge is to provide market competitive connectivity to as many customers as possible at the lowest possible cost. That means making good use of existing infrastructure, especially in the access part of the network, and intelligent investment in new technology to support growth and emerging applications. The prevalence of flat-rate-based pricing models, the rising cost of labor and other resources as well as the dramatic increase of end-user bandwidth require new and more powerful network concepts. The underlying network infrastructure needs to scale by many orders of magnitude and be simpler to operate, pushing fiber optic transmission technology closer to the end customer and making it the only viable choice for the backhaul and core of the network.

Scalable transmission technology delivers bandwidth for residential and business users

ADVA helps carriers to simplify and automate their networks and build a scalable network infrastructure that is future proof. By deploying the group's networking solutions, carriers can combine various traffic streams from different access technologies onto a single transport platform. Backhaul for copper, coax, fiber and wireless access technologies on a single platform eliminates the costly operation of parallel systems.

In addition, ADVA offers with the FSP 3000 one of the most scalable platforms on the market, allowing seamless data transport from the customer premises to the core of the network. Thus, carriers can bypass some of the small access nodes, eliminating the expense of operating these locations.

More bandwidth to more customers from fewer network sites using less energy

The ability to deliver more bandwidth to more customers from fewer sites located farther back in the network enables operators to streamline their networks while simultaneously improving the end-user experience. Energy-hungry devices, which are needed for data processing, can be concentrated in fewer network locations, leading to a network architecture that is more energy-efficient and easier to operate.

Enterprise customers require bandwidth, quality of service, network availability and security

The network edge

Serving residential customers is, in most regions around the world, a highly competitive business with low margins for service providers. The providers are therefore keen to offer telecommunications services to business customers. Serving enterprise customers is typically more lucrative as this clientele has more stringent requirements for quality of service, network performance, network availability and security. The CSP can charge a premium for these quality attributes but needs to back the service offerings with service level agreements.

CSPs increasingly rely on fiber-based access solutions to serve their business customers. With this technology, they can provide very scalable and cost-effective connectivity to buildings and business parks. Many operators deploy packet-based Carrier Ethernet technology today as a unified, data-optimized transmission solution in the access area of their infrastructure. Business customers appreciate a wide-area connectivity service, which looks like a simple extension for their in-house networking solutions.

Mobile backhaul – fiber-based Carrier Ethernet solutions to connect mobile base stations

In addition to connecting business customers, CSPs also use fiber-based Ethernet access solutions to backhaul traffic from mobile base stations. The success of smart phones and the associated high-speed mobile services created a bandwidth explosion. Mobile operators are now challenged to provide significantly higher bandwidth via their mobile networks without compromise on geographic coverage. Operators consequently upgrade their mobile networks and introduced 4G (LTE) technology. The next upgrade via LTE-Advanced is already being implemented, and the introduction of the fifth generation (5G) is expected for 2020. While the new mobile technologies allow the delivery of more bandwidth over the air interface to the mobile devices, operators also need to solve the backhaul challenge from base stations to their core networks. Higher-speed backhaul today is generally implemented via fiber and optimized for data transmission supporting all the different applications. In the context of newer mobile technologies, mobile operators further increase the density of their antenna sites by adding cells with various dimensions – so-called macro and small cells. The higher density of antennae requires better synchronization between these cell sites. In summary, the build-out of mobile broadband networks leads to a new generation of fiber-based Carrier Ethernet solutions that deliver and assure high data throughput and accurate timing information.

Mobile operators benefit from data-optimized high-speed backhauling

A higher density of radio heads improves spectral efficiency and requires accurate synchronization

The popularity of Ethernet with enterprise customers, the increasing demand of mobile network operators for high-speed backhaul and the trend towards network functions virtualization (NFV) create new market dynamics at the network edge.

Carrier Ethernet dominates at the network edge

ADVA offers a highly competitive solution set in this space. The company's FSP 150 product portfolio empowers service providers to offer their customers intelligent Ethernet services in all application scenarios faster than ever before. What's more, the portfolio is already perfectly positioned for the dawning age of NFV. In combination with the ADVA Ensemble software framework, network functions can be reliably hosted and orchestrated. In mobile backhaul applications the ADVA FSP 150 excels by delivering and assuring precise synchronization information in addition to powerful data plane performance.

Products

ADVA's portfolio strategy is built on a foundation of innovative connectivity solutions that combine the strengths of optical transmission and Carrier Ethernet technology with intelligent software and programmability for NFV.

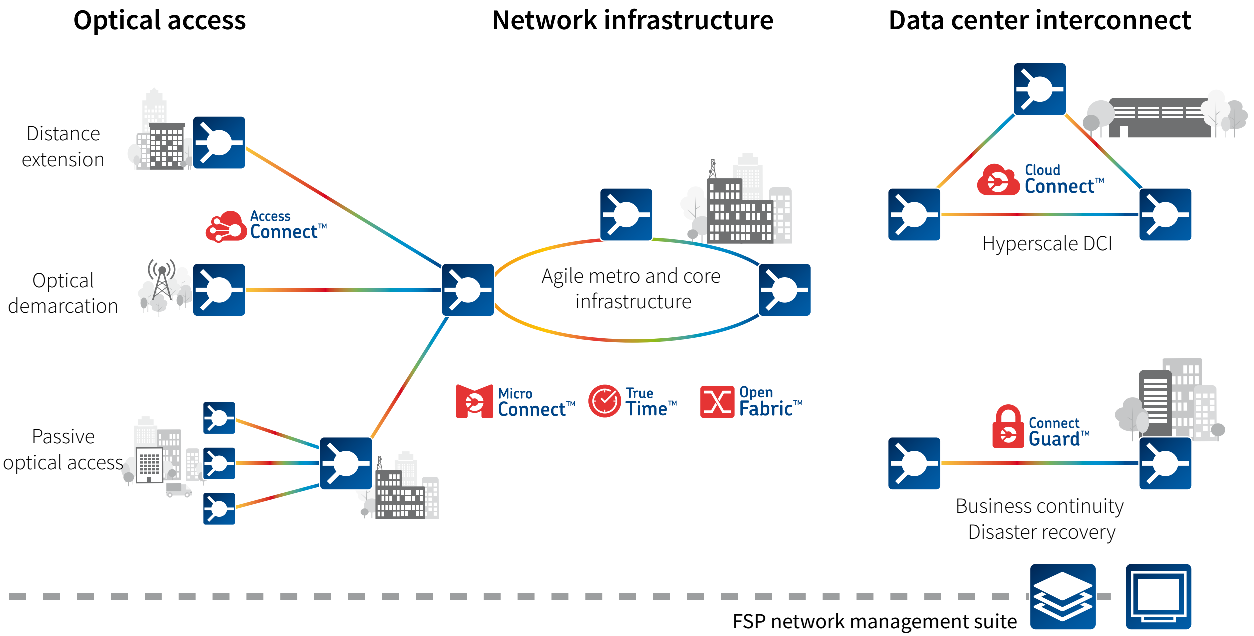
Scalable optical transport

FSP 3000 CloudConnect™ - open and secure tera-scale connectivity

The ADVA FSP 3000 is a modular WDM system designed to maximize the bandwidth and service flexibility of access, metro and core networks. The unique optical layer design is highly scalable and enables high levels of network automation. The newly introduced ADVA FSP 3000 CloudConnect™ supports fiber capacities of more than 50Tbit/s and with data rates of up to 600Gbit/s per wavelength.

The ADVA FSP 3000 – The scalable optical transport solution

The following network diagram illustrates the application space of the ADVA FSP 3000:



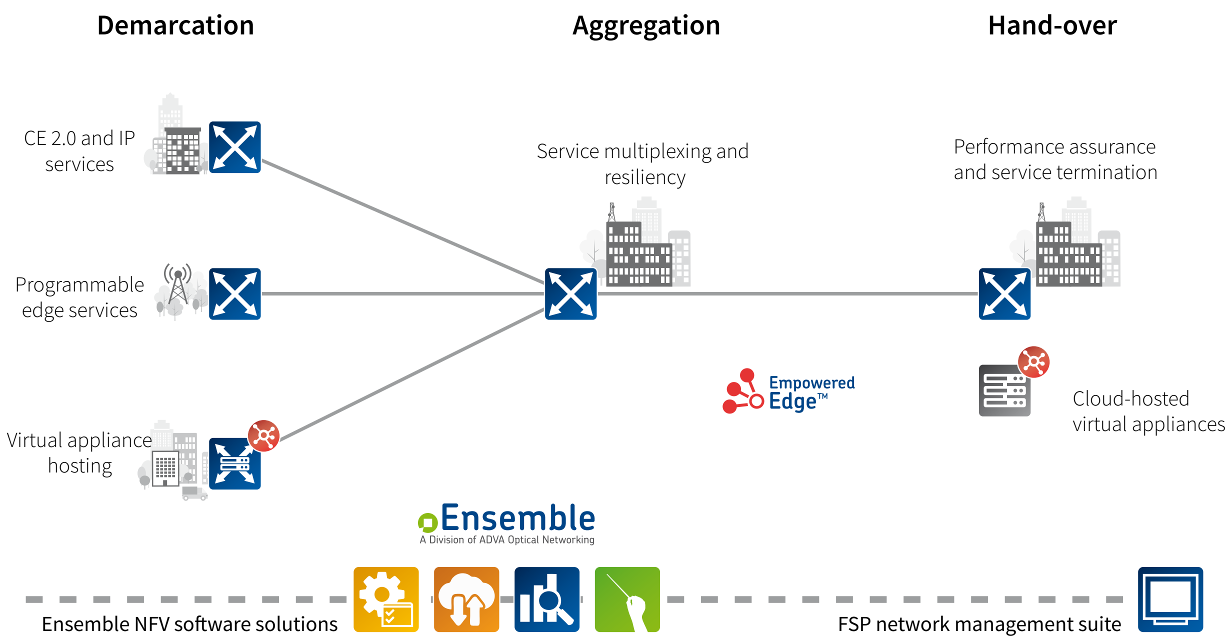
Empowered network edge

Acquisitions further strengthen the FSP 150 portfolio at the network edge

The ADVA FSP 150 product family is a programmable, universal network access technology based on Carrier Ethernet technology for the so-called network edge. Through the acquisition of Overture in 2016 and MRV in 2017, ADVA once again significantly expanded the FSP 150 product family and further strengthened its competitiveness. With the FSP 150 Pro Series and the virtualization software from ADVA Ensemble, the portfolio is optimally positioned for the next generation of NFV-based services and can also take over functions from higher network levels. With this extension, ADVA is building additional momentum in the converging market for access switching and routing and significantly expanding the addressable market for its network edge solution.

The ADVA FSP 150 – The empowered network edge

The following network diagram illustrates the application space for the ADVA FSP 150 family:



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Virtualization of network functions

Programmability and virtualization disrupt the service provider models

With the introduction of NFV, more and more network functions will be realized as software applications, independent of application-centric hardware. These software applications can then be deployed centrally in a data center, or alternatively can be installed on a network termination device with integrated server functionality, such as the ADVA FSP 150 ProVM. With ADVA Ensemble, the company provides a software architecture that enables network operators to quickly and efficiently generate, deploy and administer value-added services, regardless of specific hardware. For the first time, functions from higher network levels can now also be mapped onto the ADVA portfolio. As a result, the addressable application space for the company is once again significantly expanded.

Network synchronization

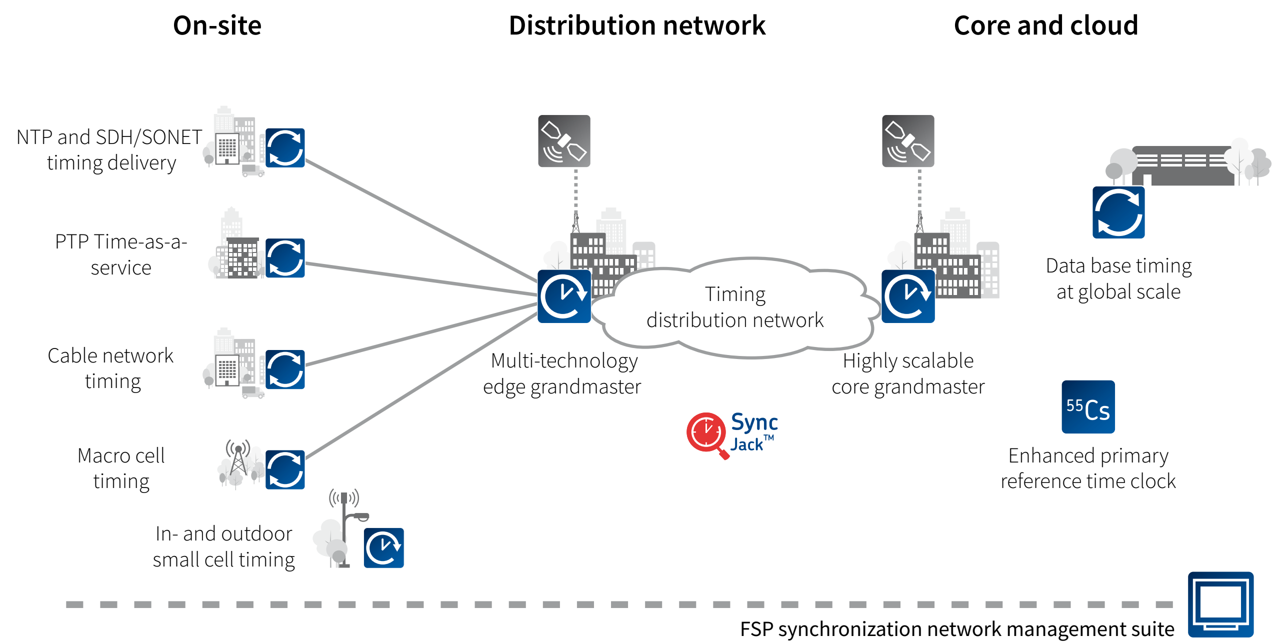
Oscilloquartz – precise delivery and assurance of highly accurate synchronization

Under the Oscilloquartz brand, ADVA develops, manufactures and distributes a broad product portfolio for the synchronization of distributed systems and network elements. This portfolio covers all necessary functions and includes:

- Highly accurate, self-contained frequency sources (e.g., cesium clocks)
- Synchronization supply units (SSU)
- End-to-end solutions to synchronize 3G, 4G and LTE networks via a packet-based infrastructure
- Global navigation satellite system (GNSS) receivers
- Network timing protocol (NTP) solutions (standalone or integrated in SSUs)
- Network management solutions

In addition to the constantly increasing demands on the precision of time and frequency, there is also a trend towards miniaturization. Also in this area, Oscilloquartz has an industry-leading portfolio, including a unique plug-in reference device in the so-called SFP form factor.

The following graphic illustrates several use case for the Oscilloquartz portfolio:



Professional services

Professional services – plan, build and care

In addition to programmable networking technology, ADVA offers a variety of services that help the company's customers plan, operate and maintain their networks. This service portfolio includes a network operation center (NOC) from which experts handle network operations for customers.

Regions, sales and marketing

Diverse global customer base continues to grow

ADVA sells its products to a broad customer base worldwide, either through distribution partners or its own direct sales force. In 2017, the group continued to increase its global end-customer base both organically and through the acquisition of MRV across all regions.

Regions

EMEA grows in 2017 and takes the lead followed by the Americas

The EMEA region covers Europe, the Middle East and Africa. In this region, ADVA has a very balanced mix of customers of various sizes and can rely on a powerful network of value-added reseller partners to support the sales of the area. In 2017 EMEA was the strongest region of the company and grew compared to 2016.

The Americas region covers North America and Latin America. In 2017, similar to 2015, America was the second strongest revenue-generating region closely behind EMEA. Many of the world's largest ICPs are US-based and represent additional growth potential. ADVA is well positioned in this space and was able to generate good revenue growth with this community in the years 2015 and 2016.

The Asia-Pacific region followed in third place. APAC includes Australia, New Zealand, Greater China, India, Japan and Southeast Asia. In this region, ADVA has a focused sales approach with only a few large customers, who guarantee sustainable and repeatable business. The region is dominated by project business and the development of sales revenues will continue to fluctuate.

Sales

Well balanced approach between direct and indirect sales

ADVA continues to employ a well-balanced sales distribution strategy to maximize customer reach around the world:

Direct sales

Direct sales is particularly important in the Ethernet access market and for internet content providers

The group continues to focus on its direct-touch initiative as well as its direct sales force to win new customers. Establishing direct contact with enterprises and carriers enables ADVA to work more closely and better understand customers' specific requirements, which in turn helps to develop the right products and solutions. A direct sales approach is required in particular to address ICPs and strategically important communication service providers.

Partner sales

VAR partners mostly provide access to carrier and large enterprise customers

Sales partners of ADVA include global system integrators such as IBM, OEM partners such as Fujitsu Network Communications (FNC) and so-called value-added resellers (VARs). Especially in the case of large enterprise networks and carriers, the company works closely with the sales partners during the planning and consulting phase and is intensively involved in the development of an optimal solution for the customer. Technical support after commissioning is generally performed by the partners. ADVA's Partner Ecosphere Program (PEP) ensures that sales partners have intensive training courses for their staff, quick and easy access to equipment engineering and high-quality support for projects.

Marketing

Focus on online presence and live communication at events

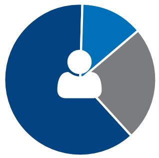
Direct-touch efforts are proactively supported by the marketing team to build the ADVA brand and to expand visibility of the entire product portfolio. Specific marketing activities include regular participation in tradeshows and conferences, tactical online advertising, news coverage and bylined articles in trade publications. ADVA supports co-marketing efforts with its partners and delivers regular e-newsletter to customers and partners. The group also maintains a dynamic and active online presence, including an influential, popular blog and social media outreach on multiple platforms.

Co-marketing alliances with solution partners

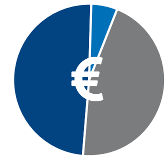
In addition, ADVA has continued to engage in marketing alliances with various global network solution providers. Of particular importance are the numerous interoperability tests, especially in the field of NFV, which ADVA is conducting with its technology partners in order to demonstrate the seamless interaction of the different systems. The ADVA Ensemble division established a global network of technology partners to ensure the seamless operation of virtualized network functions.

Brand promise to customers: “Innovation”, “Speed” and “Trusted Partner”

ADVA's brand promise can be summarized by three headlines: “Innovation”, “Speed” and “Trusted Partner”. The combination of these three elements makes ADVA a unique and differentiated player in the industry.



Employees: **1,894** (1,764)



Revenues: **EUR 514.5** (566.7) **millions**

Americas

463 (416)

EUR 224.4 (279.6) millions

EMEA

1,177 (1,096)

EUR 257.7 (251.6) millions

Asia-Pacific

254 (252)

EUR 32.4 (35.4) millions

DevOps

Organizational setup

Research, development and operations are tightly aligned with the business life cycle process

ADVA Optical Networking is taking an advanced approach to development and operations. In order to further optimize product quality, manufacturability and time to market, these traditionally separate areas are tightly integrated with cross-functional teams working closely across the entire system. DevOps and the business life cycle (BLC) organization form the two main units in the organizational setup.

The DevOps team covers products from cradle to the grave. Its goal is to ensure consistently high quality and to routinely deliver the right product to the customer in the shortest possible time.

The BLC organization is ADVA's move into next-generation, automated manufacturing, supply chain management, sales and operations planning (S&OP), logistics and reverse logistics.

A third unit, the Advanced Technology Team, continues to identify new areas of innovation. It explores research possibilities and potential avenues for feasibility analysis and proofs of concept.

DevOps

DevOps – value streams create speed, quality and efficiency for the full product life cycle

As the term suggest, DevOps refers to a combined approach to development and operations. DevOps is a model that has successfully been used in software development firms. ADVA has translated this model into a combined hardware plus software R&D environment. By adopting this model, ADVA is encouraging communication, collaboration and shared goals across cross-functional teams in all business areas. With a set of practices and policies being adopted by the whole team, the aim is to improve quality at all stages of the development life cycle by enabling fast feedback loops and rapidly changing systems.

ADVA implemented a fully integrated, value-stream oriented DevOps model of organization involving product-line management, R&D and new product introduction – life cycle engineering and quality management. It also developed a merged approach to system verification testing, network engineering and customer application testing. This setup allows a smooth and efficient integration of new products to existing portfolios. In 2017, ADVA was able to integrate the relevant products from the MRV acquisition to its FSP 3000 and FSP 150 families within just a few months only.

To further foster agile, iterative DevOps processes, ADVA expanded its activities in the photonic integration area and launched development projects for highly integrated optical components/modules with the objective of reducing product cost and increasing product differentiation.

Photonic integration helps to reduce product cost and increases differentiation

The company's market-leading product offering is the result of its DevOps set up. New innovation ensures ADVA's position as a global technology leader in important growth markets. The company continues to evolve its leading intellectual property rights portfolio, which currently includes more than 150 granted patents.

Advanced technology team drives innovative, forward-looking concepts

As a member of all key industry standardization groups, ADVA makes a significant contribution to the development of standards. It also demonstrates technology leadership through multiple publications and presentations. Through new technology trials and the development of early prototypes, ADVA plays a significant role in validating innovative ideas and concepts. Strategies are developed in close cooperation with partners, including suppliers and colleagues in research centers and universities. Many collaborative projects are conducted in conjunction with partner organizations.

The DevOps teams innovate in the areas of optics, Ethernet, network management software, fiber assurance as well as network virtualization (under the Ensemble brand) and network synchronization (under the Oscilloquartz brand). The development processes are completely agile and iterative, targeted to reinforce ADVA's position as a leader in the field of programmable networking on a secure, flexible infrastructure.

ADVA is also developing its own differentiated optical sub-modules which will enable it to tailor solutions more closely to individual customer needs for a more vertically integrated value chain. The MicroMux™ module, for example, is a tangible result of these activities and significantly expands the capabilities of the FSP 3000 CloudConnect™.

The company continuously evolves its organization further by embracing DevOps strategies for both hardware and software, always with the customer as the central focus.

BLC organization

Business life cycle process takes holistic approach to product definition

As technology and the demands of customers change over time, business approaches need to constantly evolve and adapt. ADVA's business life cycle planning involves identifying the wishes and needs of actual and future customers. Requirements for product features, as well as delivery and service activities, are then determined. Challenges are reviewed prior to giving a final commitment to supply products and/or services. This approach ensures that requirements are clearly defined and understood, potential issues are resolved and ADVA is able meet and exceed customer expectations. The BLC organization is clearly centered on the customer.

"Speed for customers" is a key promise of the ADVA brand. This promise is directly reflected in the way the company aligns its supply chain management and sales & operations teams. Intelligent IT tooling creates full transparency along the entire value chain, leading to better forecasting, material planning, shorter delivery times and higher inventory turnover.

Transactional efficiencies include network of partners

In the areas of manufacturing, logistics and reverse logistics, ADVA developed a tightly integrated approach with a set of best-in-class EMS partners. These partners handle board-level assembly and volume manufacturing tasks, provide regional launch pads close to ADVA's R&D centers for rapid prototype development and testing and also play a key role in freight consolidation and logistics. ADVA keeps increasing transactional efficiency through automation and robotics wherever possible, both in house as well as at the EMS sites.

Award winning logistics services create customer value

ADVA's in-house experts focus on creating customer value in the areas of network staging, quality and the expansion of the award-winning portfolio of logistics services. This portfolio is founded on a groundbreaking supply chain model where materials are dispatched to installation sites precisely when needed; the refurbishment and recycling of materials returned by customers; and ADVA's radical approach to collaborating with customers on planning to maximize flexibility.

Close alignment between R&D and procurement guarantees optimum product cost

The company's strategic procurement team established rigorous processes for supplier onboarding, supplier performance and stringent component cost management. Procurement is closely integrated with the R&D teams to negotiate volume pricing in the product design phase and assure lowest product cost later in the product life cycle.

Tightly integrated business application infrastructure

It is important to note that requirement planning, supply chain management, forward and reverse logistics and ADVA's broad range of service offerings are all fully supported by one common and highly integrated business application infrastructure. Its main constituents are enterprise resource planning (ERP), product data management (PDM) and customer relationship management (CRM). This integrated transactional platform is the key to organizational efficiency and is constantly being enhanced by a team of application analysts using agile project management methods. ADVA's operating principle is to move any acquisition fully onto the company's process- and organizational setup in less than six months. Fast and decisive integration are key to unleashing operational synergies and scale.

Quality management

Quality management is crucial to fulfilling our brand promise of being a "trusted partner"

ADVA strives to deliver world-class quality in all areas. From research and development, through production and supply chain management, all the way to post-sales technical support, quality management is crucial to maintaining the company's reputation as a trusted partner and its position as a quality leader in the market place. ADVA's quality management system is based on carefully controlled business processes and dynamic, continuous improvement. To ensure high-quality products, customer satisfaction and sustainability, it takes a top-down approach and its quality management team reports directly to the chief executive officer. To eliminate weaknesses in all areas, ADVA's quality management team also deals with cross-functional quality planning and monitoring.

Successful re-certifications involving new locations

In 2017, ADVA successfully completed the upgrade of its certification in accordance with the new versions of the international telecommunications quality management standards TL 9000 R6.0 / ISO 9001-2015, the unified set of quality system requirements and metrics designed specifically for the telecommunications industry. At the same time, the company underwent comprehensive ISO 14001-2015 environmental management and energy management ISO 50001 certification and was successfully re-certified for all sites worldwide.

Holistic approach including suppliers

ADVA takes a holistic approach to quality assurance. This begins with a clear focus on optimizing product development, continues into excellence in operations with close collaboration with our suppliers and manufacturing partners, and continues into shipping products to customers and providing technical support. With regard to operation activities, supplier quality is a vitally important component of quality management. Compliance with stringent quality standards and continued improvement are ensured through thorough selection of suppliers, periodic evaluation through audits and systematic inspection of incoming goods. This is also supported by cross-functional commodity teams and the ever-increasing involvement of ADVA's suppliers in the development process.

Excellent customer satisfaction ratings

The complaint management process is driven by the quality management team, which takes a proactive approach to problem solving as well as the development and optimization of business processes across the entire value chain. ADVA's quality management process is underpinned by strong customer orientation and a clear focus on customer experience. This results in greater efficiency and very high customer satisfaction ratings. For 2017, ADVA's Net Promoter Score[1] was 56% (a small 4% decrease in 2017 compared to the outstanding score of +60% in 2016). This result underlines the company's focus on customer satisfaction and its commitment to continuous improvement.

To identify weaknesses and opportunities in order to optimize cross-functional business processes, ADVA analyzes outcomes based on Lean Six Sigma methodologies. This ensures all aspects of the business can be measured and analyzed so that waste can be eliminated from every process. In order to strengthen its drive for continuous quality improvement, ADVA has taken a new approach to development and operations since 2016. Further optimized in 2017, this approach is designed to enhance product quality, manufacturability and time to market. In 2016, these traditionally separate areas became tightly integrated with cross-functional teams working closely across the entire system. DevOps and the business life cycle organization formed the two main units in the organizational realignment.

Key figures for product line quality are far above industry average at a new record level

In 2017, key performance indicators (KPIs) for product-line quality such as early return indicator (ERI), yearly return rate (YRR) and long-term return rate (LTR) were well below the industry average in many product areas. These metrics also improved on previous years giving the company its best KPIs to date. QuEST Forum, the global organization dedicated to quality and sustainability in the ICT community, has praised ADVA for having "developed a culture of continuous improvement in many areas." Members of ADVA's quality management team continue to share best practices at QuEST Forum events around the world.

IT strategy

10 years ago, ADVA Optical Networking's IT team recognized that a traditional approach to IT tools and methodologies would no longer be sufficient. In order to meet growing demand for agility, speed and customer experience, a different strategy was necessary – one that could empower IT to deliver more business value by driving innovation and quickly adapting new technologies.

Automation and hybrid cloud – transitioning from a purely cost-driven model to a business-service-oriented organization

In recent years, the IT team has focused on the transition from a classic setup to a modern IT service architecture. Automation of routine tasks and automatic service delivery were major milestones, along with the transition of services into a hybrid cloud.

Today, important business processes and major changes, such as those resulting from acquisitions, must be quickly merged into the company's existing IT infrastructure and application framework, enabling the transition from an infrastructure-oriented, purely cost-driven organization to a business-service-oriented organization.

In the digital age, IT services are becoming a differentiator and an enabler of new business models. The growing need for agility to stay competitive and to be more efficient across organizational borders demands a paradigm shift and the adoption of new practices.

Successfully managing the company's digital transformation

ADVA's IT team is well aware of the disruptive market changes caused by digitalization. This is highlighted by its identification of new digital services, as well as a 2016 digital capability assessment that ADVA conducted on itself in collaboration with PricewaterhouseCoopers. Based on the results of this analysis, ADVA's IT team initiated targeted actions in 2017 aimed at successfully managing the company's digital transformation and moving it towards its goal of becoming a digital leader in the industry.

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[1] The Net Promoter Score is obtained by asking customers a single question on a 0 to 10 rating scale: "How likely is it that you would recommend our company to a friend or colleague?" Based on their responses, customers are categorized into one of three groups: promoters (9-10 rating), passives (7-8 rating), and detractors (0-6 rating). The percentage of detractors is then subtracted from the percentage of promoters to obtain a Net Promoter Score.

The data center has evolved a great deal in recent years due to the growth in cloud technology. The move to software-defined networking and storage architecture has enabled ADVA to quickly provision new IT services. The company is also changing its internal service structure to benchmark service costs with cloud services. This allows it to quickly decide where to move services in a hybrid cloud environment.

Scalable and standardized applications landscape enables fast integration of acquisitions

In addition to the excellent unified IT infrastructure, ADVA benefits from its highly integrated and standardized applications landscape, which enables it to integrate acquisitions within just a few months.

ADVA's vision of IT in the future is characterized by the following points:

- **Data analytics center of excellence (CoE)**
  Establishing this CoE enables the company to build up and bundle analytics capabilities under one common platform.
- **IoT platform**
  This allows ADVA to connect with customer network management systems for the purpose of identifying, coordinating, prototyping, and implementing digital business models and services related to IoT topics.
- **Collaboration platforms (Enterprise 2.0)**
  Collaboration between different departments as well as external partners, suppliers and customers is a key requirement. ADVA's IT team continues to evolve the company's collaboration platform, combining the newest on-premises and cloud solutions into one core platform.
- **Unified communication**
  A state-of-the-art communication platform allows ADVA employees to quickly communicate and exchange information on any device, helping the company to drive team innovation across sites.
- **Advanced security**
  Extended rights management and encryption protects critical business information and personal data. ADVA uses cloud-based machine learning and AI to identify threats to its environment; extended multifactor authentication simplifies access to ADVA data for employees.
- **Hybrid cloud**
  ADVA extends its hybrid cloud to support all R&D software development processes with a cost-optimized solution .

Going forward, ADVA's IT team will continue to analyze and quickly incorporate any new technology trends that can benefit the company's service offerings. Emerging trends like microservices have already been tested and will allow ADVA to become even more agile. This will also help the company to control and adjust service cost.

ADVA's IT team is committed to increasing the company's internal customer satisfaction score from 85% to 90%.

Compliance and sustainability

Corporate ethics and compliance

Code of conduct embedded in a robust compliance management system

Integrity and ethical decision-making are central requirements for the sustainable success of ADVA Optical Networking. The group recognizes its responsibility to comply with national and international laws and regulations, internal policies and ethical standards – otherwise known as compliance. Its commitment to compliance is continuously communicated and reinforced by the management board and all of the group's (line) managers. It is based on ADVA's core values, which translate into a holistic code of conduct and a range of group-wide policies that govern the group's business operations and are mandatory for all employees to follow.

ADVA's code of conduct and group-wide policies are embedded into a robust compliance management system, which is structured according to the legal requirements and best practices of the group's key countries of operation, as well as common international standards. The following elements are covered:

- Strong "tone from the top"
- Periodic risk assessments
- Proportionate risk-mitigating processes and controls
- Periodic compliance training and regular communication
- Means for in-person as well as anonymous reporting
- Proportionate responses to compliance violations
- Continuous improvement of all compliance procedures

The group's compliance management system is supported by a central compliance department and currently six regional compliance officers. Activities are coordinated by ADVA's chief compliance officer who reports to the chief executive officer and the supervisory board. Whenever employees have questions or suggestions related to compliance or suspect incidents of non-compliance, they are encouraged to speak-up. In addition to clearly defined and actively communicated internal points of contact, an external ombudsman (this role is currently covered by Frank Fischer, tax lawyer and former member of ADVA's supervisory board) and an externally operated ethics and compliance helpline enable confidential and anonymous reporting.

Sustainability

ADVA's commitment to ethical decision making extends to the group's operations and products. Related activities are typically referred to as sustainability. The importance of sustainability for ADVA is best illustrated by the group's successful track record in related areas. To maintain and further strengthen the group's focus on sustainability, a dedicated sustainability department with a direct reporting line to the group's chief technology officer is in place.

ADVA's sustainability program is based on a holistic model covering a broad range of related aspects. It is shown in the following diagram:

The outlined model has been jointly developed by British Telecom and the QuEST Forum, the body which defines the TL9000 as the telecommunication industry's version of the international quality standard ISO9001. It is used by several large network operators and system vendors worldwide for assessments or self-assessments of performance across the different sustainability segments. In 2017, the group achieved "Gold" ranking according to this model.

Furthermore, the group is regularly assessed regarding its sustainability performance by large customers and independent bodies, including EcoVadis and the Carbon Disclosure Project (CDP). The latest results from EcoVadis for 2017 also showed "Gold" ranking, putting the group in the top 5% of companies ranked by that platform.

In order to further strengthen the group's sustainability strategy and efforts, ADVA joined the Science-Based Targets Initiative (SBTi) in 2016 as one of the first 200 companies worldwide. In 2017, the group submitted its carbon-reduction targets. Validation and acceptance of these targets is expected early 2018. SBTi is a joint initiative by CDP, UN Global Compact, the World Resources Institute and the WWF. Its key aim is to support the restriction of global warming to within 2°C (3.6°F) compared to pre-industrial temperatures.

Finally, details regarding the group's sustainability program, performance and indicators are also summarized in ADVA's code of conduct and its annual sustainability report, which is compiled according to the Global Reporting Initiative's (GRI) standard. Both resources are publicly available on the group's website www.advaoptical.com.

6 Combined management report

With our fiber assurance solution, we're empowering customers to realize their full potential. Our ALM is all about reducing costs, ensuring optimum availability and providing a vital competitive edge.

Fiber Assurance

Combined management report

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Basis of preparation

This report combines the Group management report of ADVA Optical Networking Group (“the Group”, “ADVA Optical Networking” or “ADVA”), comprising ADVA Optical Networking SE (hereafter referred to as “the Company”, “ADVA Optical Networking SE” or “ADVA SE”) and its consolidated subsidiaries, and the management report of ADVA Optical Networking SE.

The combined management report of ADVA Optical Networking SE was prepared in accordance with sections 315 and 315a of the German Commercial Code (Handelsgesetzbuch, HGB) and German Accounting Standards (Deutsche Rechnungslegungs-Standards) No. 17 and 20 (DRS 17 and 20).

All information contained in this report relates to the status on December 31, 2017, or the financial year ending on that date, unless stated otherwise.

In 2017, deferred tax assets and liabilities have been netted according to IAS 12.74 for the first time as far as netting requirements apply. To improve comparability, prior year information has been adjusted accordingly. The prior year adjustment mainly resulted in lower total assets; equity and net result remain unchanged. In the following discussion of business development, operational performance net assets and financial position the effects from netting have been considered.

Forward-looking statements

The combined management report of ADVA Optical Networking SE contains forward-looking statements using words such as “believes”, “anticipates” and “expects” to describe expected revenues and earnings, anticipated demand for optical networking solutions and anticipated liquidity from which internal estimates may be inferred. These forward-looking statements are based on the beliefs of the Management Board and respective assumptions made, and involve a number of unknown risks, uncertainties and other factors, many of which are beyond ADVA Optical Networking’s control. If one or more of these uncertainties or risks materializes, or if the underlying assumptions of the Management Board prove incorrect, actual results can differ materially from those described in or inferred from forward-looking statements and information. Unknown risks and uncertainties are discussed in the “risk report” section further below.

Macroeconomic outlook for the global economy mostly positive; Eurozone good

Strategy and control design

ADVA Optical Networking’s strategic goals are focused around growth & profitability, innovation, operational excellence and our employees. The strategic goals are reviewed by both the management board and the supervisory board on a yearly basis and amended where appropriate. Each of these goals is defined in detail and then broken down into specific departmental and individual targets. The strategic goals are traced to each individual employee, so that each employee can focus and be evaluated on his/her individual performance and contribution to ADVA Optical Networking’s overall performance.

Revenues, pro forma operating income, net liquidity and Net Promoter Score operationalize strategic goals and represent ADVA Optical Networking’s key performance indicators

ADVA Optical Networking measures the accomplishment of its strategic goals against revenues, pro forma operating income[1], net liquidity[2] and as a non-financial criterion customer satisfaction as measured by the Net Promoter Score[3]. These metrics represent the Group’s key performance indicators. The management board sets target values for all four metrics for the coming year and measures actual values against the target values on a monthly basis for revenues and pro forma operating income, on a quarterly basis for net liquidity and on a yearly basis for the Net Promoter Score[3]. In case of deviations from plan, corrective action can be taken quickly. This information is summarized and communicated to the management board in monthly, quarterly and yearly reports.

General economic and market conditions

The global economy in 2017

In its October 2017 edition of the World Economic Outlook the International Monetary Fund (IMF) provides a rather positive view on the state of the global economy: “The global upswing in economic activity is strengthening, with global growth projected to rise to 3.6 percent in 2017 and 3.7 percent in 2018. Broad-based upward revisions in the euro area, Japan, emerging Asia, emerging Europe, and Russia more than offset downward revisions for the United States and the United Kingdom.” However, the report also warns against too much optimism: “These positive developments give good cause for greater confidence, but neither policymakers nor markets should be lulled into complacency. A closer look suggests that the global recovery may not be sustainable – not all countries are participating, inflation often remains below target with weak wage growth, and the medium-term outlook still disappoints in many parts of the world.”

While macroeconomic changes do not necessarily have a direct impact on the market for suppliers of networking technology, it is important to acknowledge that ADVA generated the majority of its 2017 revenue in developed countries. The company's largest customer group is communications service providers, which in turn play a critical role in supplying the expanding economies with digital infrastructure.

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1 Pro forma operating income is calculated prior to non-cash charges related to the stock compensation programs and amortization and impairment of goodwill and acquisition-related intangible assets. Additionally, non-recurring expenses related to restructuring measures are not included.

2 Net liquidity is calculated by subtracting current and non-current financial liabilities as well as current and non-current finance lease obligations from cash and cash equivalents.

3 The Net Promoter Score is obtained by asking customers a single question on a 0 to 10 rating scale: "How likely is it that you would recommend our company to a friend or colleague?" Based on their responses, customers are categorized into one of three groups: promoters (9-10 rating), passives (7-8 rating) and detractors (0-6 rating). The percentage of detractors is then subtracted from the percentage of promoters to obtain a Net Promoter Score.

Market environment for ADVA

Optical networking hardware market represents the lion's share of the group's total addressable market

The addressable market for ADVA is dominated by the market for optical networking hardware. The digitization of society and the consequent increase in demand for cloud applications, the rapid adoption of digital processes across all industry sectors and the ubiquitous consumption of high-definition video via fixed and mobile networks are the most important growth drivers for the market. Optical networking technology is fundamentally important to supply the rapidly increasing amount of bandwidth in networks around the globe. It is the foundation for the digital economy, the industrial internet of things (IoT) – in Germany also referred to as "Industry 4.0" – and supports the internet content community including its base of smartphone user customers.

ADVA addresses important growth applications inside this market including optical transmission technology for carrier infrastructure as well as for data center interconnect (DCI) networks of Fortune 500 enterprises and internet content providers. However, especially in Europe, there has been a backlog in network expansion since the 2008 financial crisis. The good macroeconomic outlook for the eurozone should be viewed positively here. The rating agency Moody even sees EU telecom service providers strengthened by rigid cost-cutting programs in recent years and advances in the monetization of data services and applications and expects a slight revenue increase of around 1% for the European telecom industry in 2018 following stagnant revenues in 2017. Revenue growth and increasing profitability among network operators are typically positive indicators for network suppliers such as ADVA.

ADVA is well positioned in the WDM market, the core segment of the overall optical networking market, and the adjacent market for packet-based network access solutions. Additionally, ADVA offers solutions for the synchronization of geographically dispersed applications and for the virtualization of network functions. The total addressable market for ADVA is estimated to be USD 13 billion[4] in 2017, growing to USD 16 billion by 2021 at a CAGR (2016-2021) of 5%.

Business development and operational performance of the group

Revenues

Revenues decreased in 2017 to EUR 514.5 million

Revenues represent one of the four key performance indicators for ADVA. In 2017, the group generated revenues of EUR 514.5 million, a decrease of 9.2% on revenues of EUR 566.7 million in 2016. This decrease was mainly due to order reduction by two major customers in North America: Halfway through the year, a large internet content provider significantly reduced its order volume and, in the third quarter, a second major customer also reduced its order volume following a merger. The related decline in revenues could not be compensated by other customers. ADVA's efforts to quickly respond to the new scenario began showing results in Q4 2017. Revenues of EUR 117.2 million increased by 5.5% compared to the previous quarter, showing first cross-selling success with the expanded product and customer portfolio from the acquisition the MRV Communications group.

[4] Industry analyst estimates for metro and long-haul WDM equipment (optical) and access switching and routing (Ethernet) relevant to ADVA. Sources: Ovum, Optical Networks Forecast 2016-2021, published October 2017 and service provider switching and routing forecast 2016-2022, published January 2017

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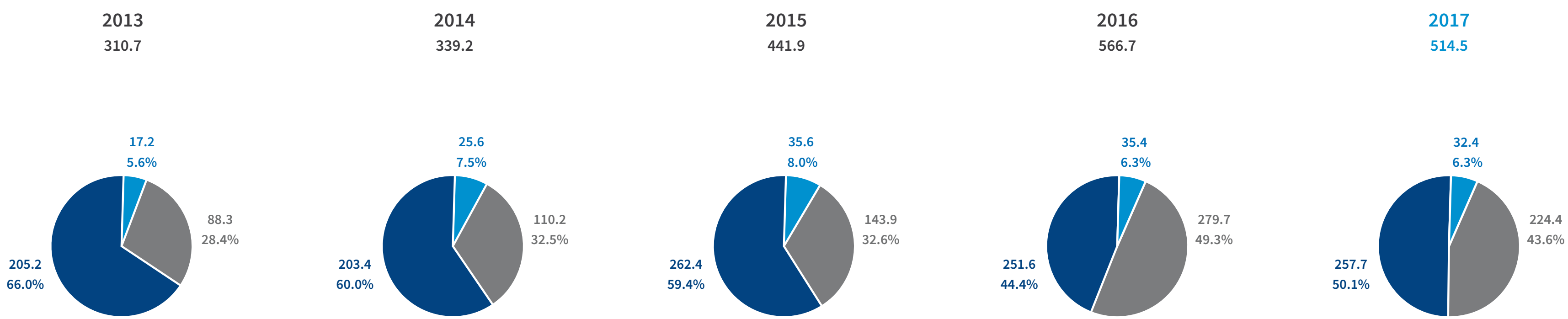
Revenues by region (in millions of EUR and relative to total revenues)



ADVA operates in a single segment, which is the development, production and marketing of innovative connectivity solutions. Therefore, a further breakdown of revenues is not relevant.

In 2017, EMEA again strongest sales region

In 2017, EMEA (Europe, Middle East and Africa) was reported as the most significant sales region, closely followed by the Americas and clearly at third place Asia-Pacific.

Year-on-year, EMEA revenues of EUR 257.7 million in 2017 were up from EUR 251.6 million in 2016 due to a healthy demand from communications service providers and enterprise customers. ADVA continues to perform well in this region despite a highly competitive market environment.

In the Americas, revenues decreased from EUR 279.7 million in 2016 to EUR 224.4 million in 2017. This decrease is a direct result of the order reduction of two major customers, as mentioned above.

In the Asia-Pacific region, revenues decreased from EUR 35.4 million in 2016 to EUR 32.4 million in 2017 as business continued to be affected by fluctuating project business and a comparatively small customer base.

Results of operations

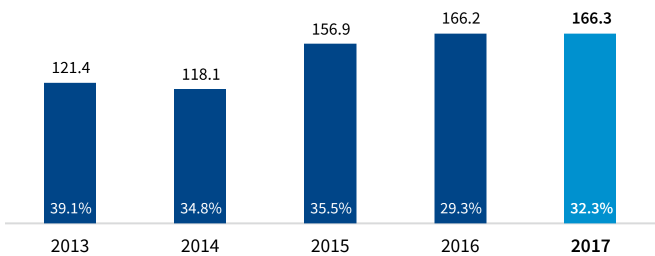
(in millions of EUR, except earnings per share)	2017	Portion of revenues	2016	Portion of revenues
Revenues	**514.5**	**100%**	**566.7**	**100%**
Cost of goods sold	-348.3	67.7%	-400.4	70.7%
Gross profit	**166.2**	**32.3%**	**166.3**	**29.3%**
Selling and marketing expenses	-62.9	12.2%	-60.0	10.6%
General and administrative expenses	-36.3	7.0%	-32.2	5.7%
Research and development expenses	-69.0	13.4%	-60.5	10.6%
Other operating income and expenses, net	6.4	1.2%	5.8	1.0%
Operating income	**4.4**	**0.9%**	**19.4**	**3.4%**
Interest income and expenses, net	-0.8	0.2%	-0.1	0.0%
Other financial gains and losses, net	-3.8	0.7%	-0.3	0.0%
Income (loss) before tax	**-0.2**	**0.0%**	**19.0**	**3.4%**
Income tax benefit (expense), net	-4.0	0.8%	2.5	0.4%
Net loss (income)	**-4.2**	**0.8%**	**21.5**	**3.8%**
Earnings per share in EUR				
basic	-0.09		0.44	
diluted	-0.09		0.43	

Cost of goods sold decreased from EUR 400.4 million in 2016 to EUR 348.3 million in 2017, primarily due to the lower revenues. Cost of goods sold includes amortization charges for capitalized development projects of EUR 29.0 million in 2017 after EUR 25.2 million in 2016.

Decline of gross profit as a result of lower revenues

Gross profit remained fairly stable at EUR 166.2 million in 2017 after EUR 166.3 million in 2016, comprising 32.3% and 29.3% of revenues, respectively. The relative increase in gross profit, as compared to the prior year, is predominantly due to the decrease in revenues from two larger costumers, with lower gross margins. The development of the group's gross margin in general is impacted by variations in regional revenue distribution and in product and customer mix.

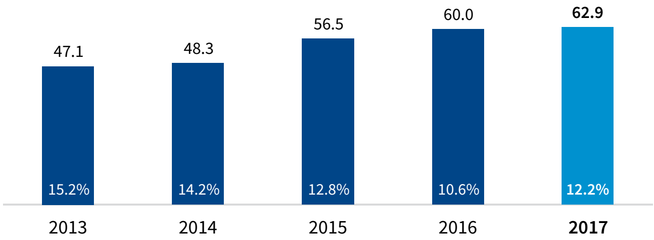
Gross profit
(in millions of EUR and relative to total revenues)



Increase in selling and marketing expenses due to higher personnel cost related to acquisition of MRV

Selling and marketing expenses of EUR 62.9 million in 2017 were up from EUR 60.0 million in 2016, and comprised 12.2% and 10.6% of revenues, respectively. This increase is mainly attributable to increased personnel expense predominantly effected by the first-time inclusion of the MRV Communications group and one-time restructuring expenses. ADVA Optical Networking continues to invest in post-sales customer service and intensified direct-touch activities with those key customers served via indirect distribution channels. Establishing direct contact enables the group to work more closely with its end customers and better understand their specific requirements, which in turn helps in developing market-relevant products.

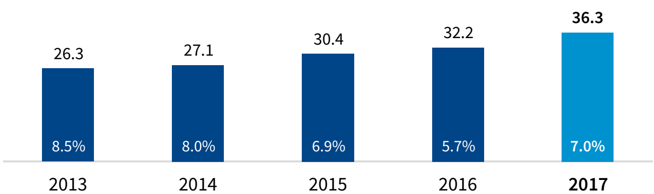
Selling and marketing expenses
(in millions of EUR and relative to total revenues)



Increasing share of general and administrative expenses due to one-time expenses related to acquisition of MRV and restructuring

General and administrative expenses at EUR 36.3 million in 2017 were up from EUR 32.2 million recorded in 2016. The share of total revenues increased from 5.7% in 2016 to 7.0% in 2017. This increase mainly relates to additional costs incurred for the integration of MRV Communications group as well as one-time restructuring expenses.

General and administrative expenses
(in millions of EUR and relative to total revenues)



ADVA Optical Networking's research and development activities are driven by the distinct emphasis on differentiating its innovative connectivity solutions for cloud and mobile services and working with customers and partners to identify and meet their current and future needs. The resulting key technologies and products simplify complicated network structures and supplement existing solutions. During 2017, research and development activities focused on enhancements to the scalable optical transport platform, timing delivery and synchronization features for Ethernet access as well as the virtualization of networks.

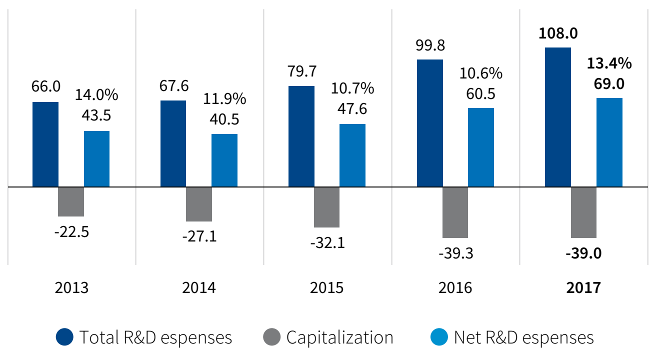
Net R&D expenses considerably increased

Capitalization of development expenses fairly stable

At EUR 69.0 million in 2017, net research and development expenses were up from the EUR 60.5 million in 2016, thereby constituting 13.4% of revenues in 2017 after 10.6% in the prior year. Capitalization of development expenses of EUR 39.0 million in 2017, was slightly down from EUR 39.3 million seen in 2016. The capitalization rate in 2017 amounted to 36.1% (prior year: 39.4%). The increase in R&D expenses mainly relates to integration of the R&D team of MRV Communications group as well as one-time restructuring expenses.

Research and development expenses

(in millions of EUR and relative to total revenues)



Net other operating income and expenses amounted to positive EUR 6.4 million in 2017, up from positive EUR 5.8 million in the prior year. This item is mainly impacted by subsidies received for specific research activities and release of provisions created in earlier periods.

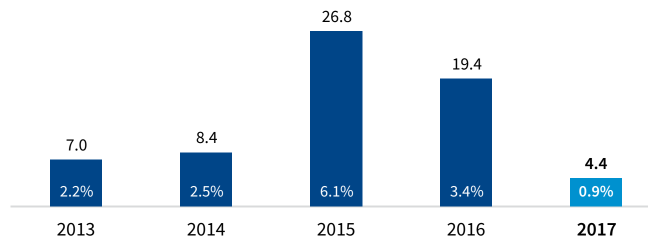
Total operating expenses increased by EUR 14.9 million, from EUR 146.9 million in 2016 to EUR 161.8 million in 2017, representing 31.5% of revenues in 2017 after 25.9% in the prior year.

Significant decrease of operating income

Overall, ADVA Optical Networking reported a significantly decreased operating income of EUR 4.4 million in 2017 after an operating income of EUR 19.4 million in the prior year. The decrease in operating result is largely due to decline of revenues, increased operating expenses due to the acquisition of MRV Communications group as well as restructuring expenses.

Operating income

(in millions of EUR and relative to total revenues)

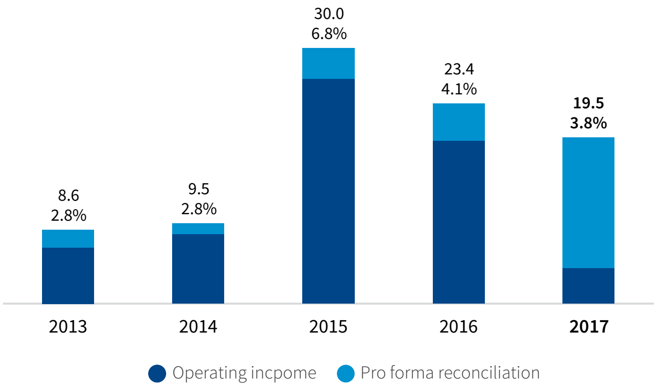


Pro forma operating income[1] represents one of the four key performance indicators for ADVA Optical Networking. As pro forma operating income excludes non-cash charges related to stock compensation and business combinations as well as non-recurring expenses related to restructuring measures, the management board of ADVA Optical Networking believes that pro forma operating income is a more appropriate measure than operating income when benchmarking the group's operational performance against other telecommunications equipment providers.

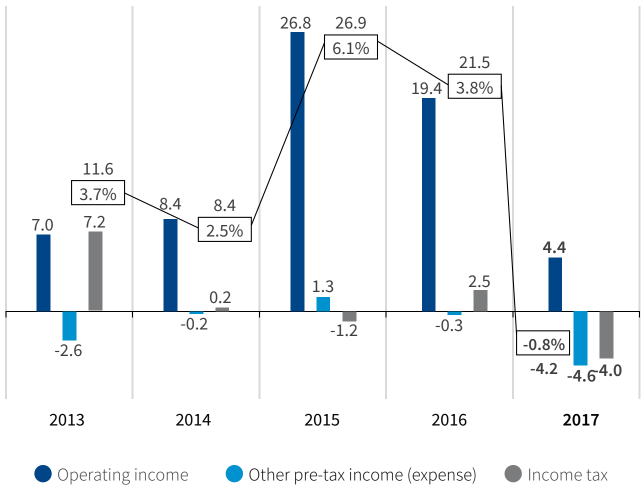
Decline of pro forma operating income

The decrease of pro forma operating income from EUR 23.4 million in 2016 to EUR 19.5 million in 2017 is mostly due to the lower operating income discussed above. However, pro forma operating income decreased at a lower rate as one-time restructuring expenses that negatively impacted operating income in 2017 have been excluded in the pro forma calculation.

Pro forma operating income
(in millions of EUR and relative to total revenues)



Net loss (income)
(in millions of EUR and relative to total revenues)



Net loss reported is mainly driven by decline in operating income

Given the unfavorable development of operating income ADVA Optical Networking reported net loss of EUR 4.2 million for 2017, after a net income of EUR 21.5 million in 2016. Beyond operating income, the net result in 2017 included net interest expenses of EUR 0.8 million (prior year: EUR 0.1 million) and net other financial losses of EUR 3.8 million (prior year: net other financial loss of EUR 0.3 million) relating to the translation of foreign currency assets and liabilities and to gains and losses on hedging instruments.

In 2017, the group reported an income tax expense of EUR 4.0 million after an income tax benefit of EUR 2.5 million in 2016. In 2017, the tax expense was mainly due to effects from the changed US tax rate as well as income tax prepayments. The tax benefit in 2016 was mainly due to the recognition of deferred tax assets on tax-loss carry forwards.

Basic and diluted earnings per share were EUR -0.09, each, in 2017 after EUR 0.44 and EUR 0.43, respectively in the prior year. Basic average shares outstanding increased by 0.2 million to 49.6 million in 2017, due to capital increases from the exercise of stock options. Diluted weighted average shares outstanding increased by 0.1 million to 50.2 million in 2017. Due to the net loss reported in 2017 no dilution effects had to be considered in the earnings per share calculation.

Summary: Business development and operational performance

Due to the decrease in revenues, as well as one-time restructuring measures and expenses related to the integration of the MRV Communications group operational performance in 2017 declined when compared to 2016. Although gross margin in 2017 increased compared to prior year overall, operating margin declined. In 2017, ADVA Optical Networking reported a net loss due to a tax expenses as well as the negative other result considered in the current period.

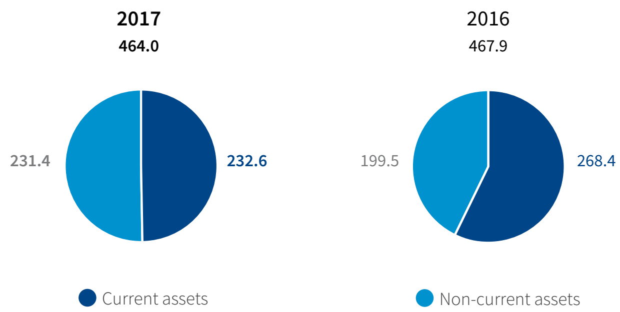
Net assets and financial position of the group

Balance sheet structure

Total assets slightly decreased with higher portion of non-current assets

ADVA Optical Networking's total assets increased by EUR 19.4 million or 4.4%, from EUR 444.6 million at year-end 2016 to EUR 464.0 million at the end of 2017.

Assets (on December 31, in millions of EUR)



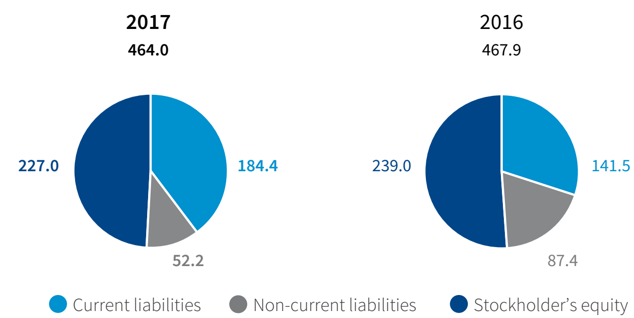
Current assets declined by EUR 35.8 million or 13.3% from EUR 268.4 million on December 31, 2016 to EUR 232.6 million on December 31, 2017, and comprised 50.1% of the balance sheet total after 60.4% at the end of the prior year. The decrease in current assets was mainly driven by a lower cash and cash equivalents and inventories. Cash and cash equivalents were down significantly by EUR 26.5 million to EUR 58.4 million at the end of December 2017, mainly due to lower income before tax as well as higher net cash used for the repayment of trade accounts payable. Inventories decreased from EUR 92.8 million at the end of 2016 to EUR 81.7 million at December 31, 2017, while inventory turns decreased to 4.1x in 2017 after 5.2x in 2016. At the same time, trade accounts receivable increased by EUR 2.9 million to EUR 81.3 million, with day's sales outstanding at 60 days reported in 2017 and 2016, respectively.

Non-current assets increased by EUR 55,2 million from EUR 176,2 million at year-end 2016 to EUR 231.4 million on December 31, 2017. Within non-current assets, capitalized development projects grew by EUR 8.9 million to EUR 85.2 million at year-end 2017. The increase was largely driven by developments of the future product platform for innovative connectivity solutions. Moreover, goodwill increased by EUR 26.6 million to EUR 68.2 million and other intangible assets increased by EUR 20.4 million to EUR 36.8 million at the end of 2017 mainly due to capitalization of technologies and, customer relationships in the course of the acquisition of the MRV Communications group. At the same time, deferred tax assets decreased by EUR 2.0 million to EUR 10.6 million at the end of 2017. In 2017, net presentation of deferred tax assets and liabilities was implemented for the first time in accordance with relevant netting requirements. Prior year information has been adjusted accordingly.

Additional off-balance-sheet assets

Meaningful additional assets belonging to ADVA Optical Networking are the broad and global customer base of several hundred service providers and thousands of enterprises, the ADVA Optical Networking, Oscilloquartz and Ensemble brands, the vendor and partner relationships and a highly motivated and skilled global team. These assets are not included in the balance sheet. Customer satisfaction as measured by the Net Promoter Score[3] represents one of the group's four key performance indicators.

Liabilities (on December 31, in millions of EUR)



Increased portion of current liabilities

With respect to equity and liabilities, current liabilities increased significantly by EUR 43.3 million from EUR 141.5 million at year-end 2016 to EUR 184.8 million at the end of 2017, primarily due to increases in current financial liabilities by EUR 60.4 million as discussed in section financial liabilities. Current provisions increased by EUR 10.2 million mainly due to the addition of MRV Communications as well as the inclusion of one-time restructuring measures. At the same time, trade accounts payable decreased significantly by EUR 34.1 million to EUR 39.2 million at year-end 2017, with day's payable outstanding stable at 59 days in

2017 and 62 days in 2016, respectively. The decrease in trade accounts payable is driven by lower material purchases related to decreased revenues as well as the timing of material purchases.

Non-current liabilities at EUR 52.2 million at year-end 2017 were down from EUR 64.1 million reported at prior year end. Within non-current liabilities, non-current financial liabilities decreased by EUR 23.2 million to EUR 17.5 million at the end of 2017. At the same time, deferred taxes reported in liabilities increased by EUR 10.0 million to EUR 16.9 million at the end of 2017 mainly related to the acquisition of MRV Communications group.

Stockholders' equity decreased by EUR 12.0 million from EUR 239.0 million at year-end 2016 to EUR 227.0 million at the end of 2017, mainly due to net loss of EUR 4.2 million reported in 2017. In 2017, capital increases totaling EUR 1.0 million from the exercise of stock options, and stock compensation expenses totaling EUR 0.9 million, were reported.

Balance sheet ratios

Equity ratio at 48.9%

The equity ratio stood at 48.9% at the end of 2017, after 53.8% at year-end 2016. The non-current assets ratio amounted to 98.1% on December 31, 2017, with stockholders' equity largely covering the non-current assets.

(on December 31, in %)		2017	2016
Equity ratio	Stockholders' equity / Total assets	48.9	53.8
Non-current asset ratio	Stockholders' equity / Non-current assets	98.1	135.6
Liability structure	Current liabilities / Total liabilities	78.0	68.8

Capital expenditures

Capital expenditures for intangible assets are mainly related to capitalized development projects

Capital expenditures for additions to property, plant and equipment in 2017 amounted to EUR 10.6 million, down from EUR 12.9 million in 2016, largely reflecting lower investments in land and buildings.

Capital expenditures for intangible assets of EUR 44.0 million in 2017 were up from EUR 41.3 million in the prior year. This total consists of capitalized development projects of EUR 39.0 million in 2017 after EUR 39.4 million in 2016, and investments in software licenses and other intangible assets of EUR 5.0 million in 2017 after EUR 1.9 million in 2016. Investments in capitalized development projects are mainly driven by development activities for the new FSP 3000 CloudConnectTM.

Cash flow

(in millions EUR)	2017	Portion of cash	2016	Portion of cash
Operating cash flow	27.1	46.5%	61.4	72.3%
Investing cash flow	-90.5	155.1%	-86.4	101.8%
Financing cash flow	36.9	63.2%	15.8	18.6%
Net effect of foreign currency translation on cash and cash equivalents	0.0	0.0%	0.2	0.3%
Net change in cash and cash equivalents	**-26.5**	**45.4%**	**-9.0**	**10.6%**
Cash and cash equivalents at the beginning of the period	84.9	145.4%	93.9	110.6%
Cash and cash equivalents at the end of the period	**58.4**	**100.0%**	**84.9**	**100.0%**

Decreased operating cash flow mainly lower income before tax

Cash flow from operating activities at EUR 27.1 million in 2017 was significantly down EUR 34.3 million from EUR 61.4 million in 2016. This development was largely due to decrease in income before tax and higher usage of cash in working capital.

Increased use of funds for investing activities

Cash flow from investing activities was negative EUR 90.5 million in 2017 after negative EUR 86.4 million in the prior year. The use of funds for investing activities in 2017 is largely due to the acquisition of MRV Communications while in 2016 the use of funds was mainly driven by the acquisition of Overture. At the same time, capital expenditures for property, plant and equipment as well as capitalized development projects remained fairly stable.

Acceptance of new financial debt

Finally, cash flow from financing activities at positive EUR 36.9 million in 2017 was significantly up compared to the 2016 level of positive EUR 15.8 million. The net cash inflow in 2017 was mainly impacted by the acceptance of a new loan used for financing of the acquisition of the MRV Communications. This inflow was only partly compensated by the servicing of existing debt. In 2016, these cash inflows mainly included the increase in financial liabilities due to the acceptance of two new loans used for financing of the acquisition of Overture Networks group.

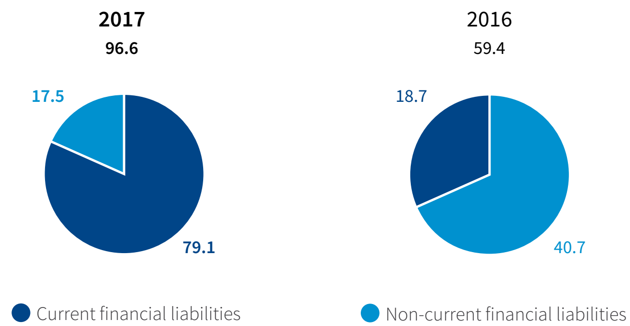
Overall, including the net effect of foreign currency translation on cash and cash equivalents of EUR 0.0 million (2016: EUR 0.2 million), cash and cash equivalents essentially decreased by EUR 26.5 million in 2017, from EUR 84.9 million at year-end 2016 to EUR 58.4 million at the end of 2017, after an decrease of EUR 9.0 million in the prior year.

Financing and liquidity

Equity base remains strong

ADVA Optical Networking's financial management is performed centrally by ADVA Optical Networking SE. Its objective is to provide sufficient funds to ensure ongoing operations and to support the group's projected growth. Beyond the strong equity base appropriate for the business, ADVA Optical Networking finances its business by means of liabilities with maturities typically exceeding the life of the assets being financed. For any liability taken, ADVA Optical Networking is focused on minimizing related interest cost, as long as access to funds is not at risk. Excess funds are generally used to redeem.

Financial liabilities (on December 31, in millions of EUR)



Significant increase in current financial liabilities

Mainly due to a new loan of EUR 55.0 million drawn in August 2017 total financial liabilities increased from EUR 59.4 million at year-end 2016 to EUR 96.6 million at the end of 2017. The new loan, a current bridge financing facility for the acquisition of the MRV Communications group, has to be repaid latest in June 2018. The loan includes a staggered interest rate agreement. While the current portion at EUR 79.1 million significantly increased compared to EUR 18.7 million reported at year-end 2016 mainly due to the short-term bridge loan, the non-current portion decreased from EUR 40.7 million on December 31, 2016, to EUR 17.5 million at the end of December 2017. All financial liabilities were exclusively denominated in EUR at the end of 2016 and 2017.

On December 31, 2017, the group had available EUR 8.0 million (on December 31, 2016: EUR 8.0 million) of undrawn committed borrowing facilities in respect of which all conditions had been met.

Further details about the group's financial liabilities can be found in note (13) to the consolidated financial statements.

Net liquidity

Liquidity position affected by one-time effects due to the MRV acquisition

Net liquidity[2] represents one of the four key performance indicators for ADVA Optical Networking. Due to the decrease in cash and cash equivalents and increase in financial liabilities in 2017, ADVA Optical Networking's net liquidity at negative EUR 38.2 million on December 31, 2017, decreased significantly by EUR 63.7 million compared to year-end 2016. Cash and cash equivalents of EUR 58.4 million on December 31, 2017, and of EUR 84.9 million on December 31, 2016, were invested mainly in EUR, USD and in GBP. At year-end 2017 and 2016, access to EUR 0.3 million and EUR 0.1 million of cash and cash equivalents was restricted, respectively.

(on December 31, in millions of EUR)	2017	2016
Cash and cash equivalents	58.4	84.9
– financial liabilities		
current	-79.1	-18.7
non-current	-17.5	-40.7
Net liquidity	-38.2	25.5

ADVA Optical Networking's reports liquidity ratios as follows:

Liquiditätskennzahlen (zum 31. Dezember)		2017	2016
Cash ratio	Cash and cash equivalents / Current liabilities	0.32	0.60
Quick ratio	Monetary current assets* / Current liabilities	0.76	1.15
Current ratio	Current assets / Current liabilities	1.26	1.90

* Monetary current assets are defined as the sum of cash and cash equivalents, short-term investments and securities and trade accounts receivable.

Return on capital employed at 1.4%

Return on capital employed in 2017 was at 1.4%, essentially down from 6.4% reported in 2016. This development is largely due to the decreased operating result reported in 2017.

Return on capital employed (ROCE) (base data in millions of EUR)	2017	2016
Operating income	4.4	19.4
Average total assets*	465.8	436.6
Average current liabilities*	154.0	133.6
ROCE Operating income / Ø total assets - Ø current liabilities	**1.4%**	**6.4%**

* Arithmetic average of five quarterly period-end values (Dec. 31 of the prior year and Mar. 31, Jun. 30, Sep. 30 and Dec. 31 of the year).

Transactions with related parties

Transactions with related individuals and legal entities are discussed in notes (35) and (36) to the consolidated financial statements.

Summary: Net assets and financial position

Mainly due to one-time effects related to the acquisition of the MRV Communications group net assets and financial position of ADVA Optical Networking declined in 2017.

Performance of ADVA Optical Networking SE

In addition to reporting on the ADVA Optical Networking group, the following sections provide information on the performance of ADVA Optical Networking SE.

ADVA Optical Networking SE is the parent company of the group and performs the group's management and corporate functions. It takes on major group-wide responsibilities such as finance and accounting, corporate compliance and risk management, strategic and product-oriented R&D activities as well as corporate and marketing communications worldwide.

ADVA Optical Networking SE's separate financial statements are prepared in accordance with the German Commercial Code. The complete separate financial statements are published separately.

Branch offices and organization

The company maintains its registered office in Meiningen, Germany. This is also the location of the main production and development facility of the company (345 employees at year-end 2017). Branch offices are located in Berlin, focusing on software development for the company's products (49 employees) and in Martinsried/Munich, where the company maintains its headquarter with all central functions and the sales & marketing organization (124 employees). On December 31, 2017, further branch offices were located in Hannover (10 employees), Courtaboeuf/Paris, France (16 employees), Machelen/Brussels, Belgium (2 employees), Madrid, Spain (2 employees), Helsinki, Finland (1 employee), Grottaferrata/Rome, Italy (12 employees), Vienna, Austria (3 employees), Zurich, Switzerland (2 employees), Dubai, United Arab Emirates (1 employee) and Centurion/Pretoria, South Africa (5 employees). ADVA Optical Networking is organized according to functional areas across all international locations.

Operational performance

In 2017, ADVA Optical Networking SE generated revenues of EUR 321.7 million, representing a decrease of 16.8% compared to EUR 386.6 million in 2016. This decrease in revenues mainly relates to the significant order reduction of two major customers in North America.

EMEA continued to be the most important sales region in 2017, followed by the Americas and Asia-Pacific. EMEA revenues increased slightly by 1.1% from EUR 215.2 million in 2016 to EUR 217.6 million in 2017, representing 67.6% of total revenues after 55.7% in 2016. In the Americas, revenues decreased significantly by 42.8% from EUR 142.8 million in 2016 to EUR 81.7 million in 2017. This decrease was mainly due to order reductions of two major customers. The corresponding share of total annual revenues decreased from 36.9% to 25.4%. In the Asia-Pacific region, revenues were down by 22% from EUR 28.7 million in 2016 to EUR 22.4 million in 2017. The Asia-Pacific region comprised 7.0% of total revenues in 2017 after 7.4% in 2016. The business activities in this region continues to be affected by fluctuating project business and a comparatively small customer base.

Cost of goods sold decreased from EUR 267.6 million in 2016 to EUR 209.6 million in 2017, decreasing the share in total revenue from 69.2% to 65.2% in 2017. The decrease in cost of goods sold is primarily due to the significant decrease in revenues.

Gross profit decreased from EUR 119.1 million or 30.8% of revenues in 2016 to EUR 112.1 million or 34.8% of revenues in 2017. The development of the group's gross margin is impacted by variations in regional revenue distribution and in product and customer mix.

Selling and marketing expenses increased from EUR 28.1 million in 2016 to EUR 30.7 million in 2017. General and administrative expenses increased to EUR 16.8 million from EUR 15.1 million in 2016. Considering capitalization of development expenses, increasing from EUR 36.7 million in 2016 to EUR 39.0 million in 2017, research and development expenses totaled EUR 73.7 million or 22.9% from revenues compared to EUR 63.7 million or 16.5% from revenues in the prior year. The increase mainly results from intercompany recharges. Other operating result (other operating income less other operating expenses) declined to EUR 1.6 million from EUR 3.7 million in 2016.

The company generated a result after tax of negative EUR 7.5 million in 2017, compared to positive EUR 17.5 million in 2016.

In 2017, the company reported a net loss of EUR 7.5 million after a net profit of EUR 17.5 million in 2016.

Summary: Business development and operational performance

Overall, the business development and operational performance decreased significantly, mainly driven by the decrease of revenues in 2017 compared to 2016 combined with a disproportional increase in operating expenses. Consequently, a net loss was reported in 2017.

Net assets and financial position

The balance sheet total increased by EUR 7.2 million from EUR 315.5 million at year-end 2016 to EUR 322.7 million at year-end 2017. Non-current assets increased from EUR 173.4 million to EUR 211.0 million on December 31, 2017, representing 65.4% of total assets after 55.0% at the end of the previous year. Current assets declined to EUR 110.0 million from EUR 140.6 million in 2016, representing 34.1% of total assets after 44.6% at the year-end 2016.

The increase in non-current assets was mainly driven by an increase in financial assets by EUR 28.8 million to EUR 99.0 million, as well as by an increase in intangible assets with EUR 8.9 million to EUR 101.4 million. Furthermore, property, plant and equipment slightly decreased compare to the previous year.

Mainly due to the net loss reported in the current year, stockholders' equity decreased from EUR 155.2 million at year-end 2016 to EUR 148.7 million at year-end 2017 and represented 46.1% of the balance sheet total after 49.2% at the end of 2016. Liabilities increased from EUR 134.1 million to EUR 146.5 million. The increase in liabilities is primarily due to the increase of liabilities to banks of EUR 37.2 million, partly offset by a decrease of the trade accounts payable, of EUR 29.4 million. Provisions decreased from EUR 12.5 million in 2016 to EUR 12.0 million in 2017.

Capital expenditures

Total capital expenditures amounted to EUR 105.8 million in 2017 (prior year: EUR 112.1 million). Thereof, EUR 3.5 million (prior year: EUR 4.0 million) were attributable to property, plant and equipment, EUR 43.7 million (prior year: EUR 53.0 million) to intangible assets and EUR 58.6 million to financial assets (prior year: EUR 55.1 million). Investments in property, plant and equipment mainly relate to measuring and test equipment. Investments in intangible assets primarily relate to capitalized development projects, as well as the purchase of new technologies and intellectual property rights. Investments in capitalized development projects are mainly driven by development activities for the new FSP 3000 CloudConnect™.

The increase of the financial assets was primarily driven by additional loans granted to affiliated companies. In 2017, additions of EUR 58.6 million were recorded compared to EUR 40.1 million in the previous year.

Liquidity

The development of cash and cash equivalents is analyzed in as follows:

(in millions EUR)	2017	2016
Operating cash flow	25.1	61.5
Investing cash flow	-75.9	-96.1
Financing cash flow	36.9	16.6
Net change in cash and cash equivalents	**-13.9**	**-18.0**
Cash at banks and in hand at the beginning of the year	21.3	39.3
Cash and cash equivalents at the end of the year	**7.4**	**21.3**

During 2017 and 2016, the company was able to meet all payment obligations.

Cash and cash equivalents of EUR 7.4 million on December 31, 2017, and of EUR 21.3 million on December 31, 2016, were denominated mainly in EUR and USD. Due to the decrease in cash and cash equivalents in 2017, ADVA Optical Networking SE´s net liquidity decreased from negative EUR 38.1 million in 2016 to negative EUR 89.2 million in 2017.

Financing

Liabilities to banks increased from EUR 59.4 million at year-end 2016 to EUR 96.6 million at the end of 2017. This increase is mainly due to a new loan of total EUR 55.0 million from Deutsche Bank Luxembourg S.A.. The loan was passed on to ADVA NA Holdings for financing of the acquisition of MRV Communications. At the end of 2017 and 2016, all liabilities to banks were exclusively denominated in EUR. The company intends to convert its current financial liabilities into non-current financial liabilities. In this context the company concluded a long term loan amounting to EUR 10.0 million in January 2018. The company estimates the probability of not being able to convert its current financial liabilities to non-current financial liabilities to be very unlikely.

On December 31, 2017, the company had available EUR 8.0 million (on December 31, 2016: EUR 8.0 million) of undrawn committed borrowing facilities in respect of which all conditions had been met.

The following table provides an overview on interest terms and the maturity structure of each financial liability at year-end 2017:

(in millions EUR)		Interest terms	Maturity		
			≤ 12 months	12 – 36 months	> 36 months
IKB Deutsche Industriebank loans*	18.8	Fixed rate, subsidized**	6.3	12.5	–
	7.5	Fixed rate, subsidized**	2.5	5.0	–
	3.1	Fixed rate, subsidized**	**3.1**	–	–
HSBC loan*	12.2	Fixed rate, subsidized**	12.2	–	–
Deutsche Bank Luxembourg	55.0	Fixed rate, subsidized**	55.0	–	–
Total financial liabilities	**96.6**		**79.1**	**17.5**	–

* Key covenants refer to the group's year-end debt/equity ratio and to the quarter-end net liquidity.
** Subsidized by the Kreditanstalt für Wiederaufbau (KfW).

Dividend payments

In 2017, there were no dividend payments for 2016 (prior year: nil for 2015). ADVA Optical Networking SE does not plan to pay out a dividend for 2017.

Summary: Net assets and financial position

The net assets as well as net liquidity of ADVA Optical Networking SE declined in 2017.

Events after the balance sheet date

There were no events after the balance sheet date that materially impacted the net assets and financial position of the group on December 31, 2017, or its financial performance for 2017. Similarly there were no events considered material for disclosure.

Share capital and shareholder structure

On December 31, 2017, ADVA Optical Networking SE had issued 49,735,549 no par value bearer shares (December 31, 2016: 49.498.934). The common shares entitle the holder to vote at the Annual Shareholder´s Meeting and to receive dividends in case of a distribution. No restrictions are attached to the common shares. No other class of shares had been issued during the reporting period.

At year-end 2017, EGORA Holding GmbH held a total of 7,456,749 shares or 14.99% of all ADVA Optical Networking SE shares outstanding (at year-end 2016: 7,456,749 shares or 15.06% of all shares outstanding). 5,930,902 of these shares or 11.92% of all shares outstanding (at year-end 2016: 5,930,902 shares or 11.98% of all shares outstanding) were held by EGORA Ventures GmbH, a 100% subsidiary of EGORA Holding GmbH, and the remaining 1,525,847 shares or 3.07% of all shares outstanding (at year-end 2016: 1,525,847 shares or 3.08% of all shares outstanding) were held directly by EGORA Holding GmbH. Both EGORA companies have their registered offices in Fraunhoferstrasse 22, 82152 Martinsried/Munich, Germany. Additionally, at year-end 2017 Teleios Capital Partners LLC, registered office Baarerstraße 12 in 6300 Zug, Switzerland, held 7,469,936 shares or 15.02% of all ADVA Optical Networking SE shares outstanding (at year-end 2016: no shares). No other shareholder has filed with the company to have held more than 10% of the company's shares outstanding on December 31, 2017. Further details on share capital and shareholder structure are disclosed in note (17) to the consolidated financial statements.

Restriction of voting rights and share transfers

At year-end 2017, the management board of ADVA Optical Networking SE had no knowledge of any restrictions related to voting rights or share transfers.

Appointment and dismissal of management board members

The appointment and dismissal of members of the management board of ADVA Optical Networking SE follows the direction of the German Stock Corporation Act (Aktiengesetz, AktG), the German SE Implementation Act (SE-Ausführungsgesetz, SEAG) as well as the provisions in section 6 of the company's current articles of association as of January 3, 2018. According to these articles, in principle the supervisory board appoints the members of the management board and does so for a maximum period of five years. However, it is the company's practice to appoint the members of the management Board for two years only. Repeated appointment is possible. According to the company's articles of association, the management board of ADVA Optical Networking SE shall regularly consist of two individuals and the supervisory board shall have the right to determine and appoint a higher number of individuals. If the management board consists of more than one individual, the supervisory board may appoint one member of the management board chief executive officer or speaker of the management board, and another member his or her deputy. The supervisory board may recall an already-effective appointment for important reasons. In 2017, Scott St. John has been appointed member of the management board until September 30, 2018. No dismissals of management board members were affected in 2017. Until October 2017, ADVA Optical Networking SE's management board consisted of Brian Protiva (chief executive officer), Christoph Glingener (chief technology officer & chief operating officer) and Ulrich Dopfer (chief financial officer) throughout the year. From October 2017 until the end of the financial year ADVA Optical Networking SE's management board comprised of Brian Protiva (chief executive officer), Christoph Glingener (chief technology officer & chief operating officer), Ulrich Dopfer (chief financial officer) and Scott St. John (chief marketing & sales officer).

Changes to articles of association

Changes to ADVA Optical Networking SE's articles of association follow section 179 of the German Stock Corporation Act (Aktiengesetz, AktG) in conjunction with section 133 AktG, as well as the provisions in section 4 paragraph 6 and section 13 paragraph 3 of the company's current articles of association as of January 3, 2018. Accordingly, in principle any changes to the articles of association other than purely formal amendments need to be resolved by the Shareholders' Meeting. However, the Shareholders' Meeting has authorized the supervisory board to change the version of the articles of association in accordance with capital increases from authorized capital and conditional capital.

Issuance and buy-back of shares

The rights of the management board to issue new shares are regulated in section 4 paragraphs 4 to 5k of the articles of association as of January 3, 2018, of ADVA Optical Networking SE. According to ADVA Optical Networking SE's current articles of association the management board is authorized with approval of the supervisory board to increase the capital stock by up to 24,048,215 new shares from authorized capital, amounting to a total of EUR 24,048,215 against cash or contribution in kind with possible exclusion of subscription rights (authorized capital 2015/I). As of December 31, 2017, the authorized capital amounted to EUR 24,048,215, so that at that time the management board have been capable of issuing up to 24,048,215 shares, commensurate to 48.35% of total shares outstanding. In addition, as of December 31, 2017, a total of two tranches of conditional capital amounting to a total of EUR 4,812,996 were recorded in the commercial register (conditional capitals 2003/2008 and 2011/I). The conditional capitals can only be used for granting stock option rights to members of the management board, to employees of the company and to management and employees of affiliated companies. The conditional capital increase is put into effect only if, when and insofar the holders of the option rights exercise these rights. 236,615 new shares were already created in 2017 as a result of the exercise of stock options, but will only be registered in the trade register after the balance sheet date. Thus, the number of shares that can be issued by the management board from the two tranches of conditional capital is reduced to 4,576,381.

At year-end 2017, the management board was authorized to buy back up to a total of 10.0% of the existing share capital at the time of resolution by the annual general meeting or – if this value is lower – at the time the authorization will be exercised. This right was granted to the management board by a resolution of the shareholders' meeting on May 20, 2015 until May 19, 2020. Shares bought back may be used for all legally permitted purposes, in particular as consideration for the acquisition of companies, parts of companies or investments in companies, for issuing stock to employees of the company or affiliated companies, for serving share subscription rights from the company's stock option plans, and for redeeming the shares pursuant to the legal provisions.

Takeover bid-driven change of control provisions

At year-end 2017, a loan with redemption value of nominally EUR 3.1 million (repayable in 16 equal quarterly installments since September 2014), a loan with redemption value of nominally EUR 12.2 million (repayable on April 1 upon a termination agreement), a loan with redemption value of nominally EUR 18.75 million (repayable in 16 equal quarterly installments from March 2017), a loan with redemption value of nominally EUR 7.5 million (repayable in 16 equal quarterly installments from March 2017) and a bridge loan with a redemption value of nominally EUR 55.0 million (repayable in June 2018), respectively, are part of ADVA Optical Networking SE's financial liabilities. In the event of a potential takeover bid-driven change in control of ADVA Optical Networking SE, the creditors have the right to terminate these loans with immediate effect.

As of December 31, 2017, for the event of a takeover bid-driven change in control there have been no recourse agreements in place with any of the members of the management board or with any of the group's employees.

Declaration on corporate governance and corporate governance report

Compliance with the rules of proper corporate governance is of great importance to ADVA Optical Networking, it is the foundation for the group's success. According to section 289f and § 315d of the German Commercial Code (Handelsgesetzbuch, HGB), ADVA Optical Networking SE is obliged to publish a "declaration on corporate governance", and section 161 of the German Stock Corporation Act (Aktiengesetz, AktG) in connection with section 3.10 of the German Corporate Governance Code as amended on January 3, 2018, recommends that management board and supervisory board shall prepare a "corporate governance report". In order to facilitate public access to all respective data, ADVA Optical Networking integrates the "declaration on corporate governance" and the "corporate governance report" into one single publication on its website www.advaoptical.com (About Us / Investor Relations / Corporate Governance / Declaration on Corporate Governance and Corporate Governance Report).

Nonfinancial report

In order to facilitate public access to all respective data, ADVA Optical Networking decided to publish a separate nonfinancial report on its website www.advaoptical.com (About Us / Sustainability) until April 30, 2018.

Definition of aims and terms for the rise of the women portion in the supervisory board, the management board and in both leadership levels below the management board

Following the entry into force of the "Law on Equal Participation of Women and Men in Management Positions in the Private and Public Sector" (FüPoG), the supervisory board of ADVA Optical Networking SE has set a target of 33.33% for the company's supervisory board, and a target of 0% for the management board of the company, both to be achieved by June 30, 2017. As of June 30, 2017, the proportion of women on the supervisory board of ADVA Optical Networking SE was 33.33% and on the management board 0%. So, both targets were achieved. For the following period, the supervisory board determined at its meeting on November 15, 2017, that a women's portion of 33.33% in the supervisory board shall be maintained until March 31, 2021, and a women's portion of 0% in the management board until December 31, 2021. As of December 31, 2017, these shares have already been realized.

Following the entry into force of the FüPoG, the management board of ADVA Optical Networking SE has set an 8% women's share for the first management level and a 30% women's share for the second management level below the management board; both to be achieved by June 30, 2017. As of June 30, 2017, the women's portion on the first management level was 7%, and 32% on the second management level, exceeding the self-imposed target on the second management level, but slightly missing the self-imposed target of the first management level. This was due to an in-house change of a reporting line that lifted a male executive from the second to the first management level; besides that, the management structure and team remained unchanged at both management levels. For the following period, ADVA Optical Networking SE's management board has set a target of 7% for the women's share on the first level of management and of 30% on the second level of management below management board, both to be achieved until June 30, 2022 .

Remuneration of the management and the supervisory board

The compensation of ADVA Optical Networking's management board members consists of fixed and variable components. In addition to a fixed salary, the members of the management board receive two kinds of variable compensation which are assessed based either on short-term aspects or on long-term criteria focusing on the sustainable development of the group. As additional long-term variable compensation, the management board members receive stock options within the scope of ADVA Optical Networking's stock option program. The maximum amount of compensation for the members of the management board is capped, both overall and for its variable compensation components (annual bonus, long term bonus, newly issued options).

In 2017, the fixed salaries of the CEO, the CTO/COO and the CFO remained unchanged. The fixed salary of the CMSO who joined the management board at the beginning of the fourth quarter initially appointed until September 30, 2018 was agreed pro rata temporis according to the existing salary structure. The short-term variable compensation of all four members of the management board was based on the group's pro forma operating income[1] (40%), the group's revenues (20%), and the group's net liquidity[2] (20%) as well as individual goals agreed with each member of the management board at the beginning of the year (20%). The short-term variable compensation is determined annually as compensation for the current year at the discretion of the supervisory board. Furthermore, a long-term variable compensation focusing on the sustainable development of the group was agreed which will be paid to the members of the management board after three years, provided that minimum group pro forma operating income margins, increasing year-by-year, are met for each of the three years. All members of the management board additionally receive a company car or a car allowance. Moreover, ADVA Optical Networking bears the costs of pecuniary damage liability insurance for the management board members, taking into account the statutory deductible amount. These benefits are partially taxable by the members of the management board as non-cash benefits. In addition, ADVA Optical Networking grants stock options to members of the management board. These option rights authorize the members of the management board to purchase a set number of shares in the company once a fixed vesting period has elapsed and the goal to increase the share price by at least 20% has been reached.

Total management board compensation payable for 2017 and 2016 was EUR 1,538 thousand and EUR 2,429 thousand, respectively. During both years, there were no long-term service contracts in the sense of IAS 19 for any member of the management board. In 2017 and 2016, no loans were granted to the members of the management board At December 31, 2017 and 2016, no receivables outstanding from members of the management board have been reported.

Value of benefits granted for the reporting period

	Brian Protiva				Christoph Glingener				Ulrich Dopfer				Scott St. John			
	Chief executive officer				Chief technology officer & Chief operating officer				Chief financial officer				Chief marketing & sales officer (from October 1, 2017)			
(in thousands of EUR)	**2017**	**2016**	**2017 (Min)**	**2017 (Max)**	**2017**	**2016**	**2017 (Min)**	**2017 (Max)**	**2017**	**2016**	**2017 (Min)**	**2017 (Max)**	**2017**	**2016**	**2017 (Min)**	**2017 (Max)**
Fixed compensation	253	253	253	253	253	253	253	253	253	253	253	253	63	–	63	63
Fringe benefits	14	15	14	14	13	11	13	13	18	15	18	18	5	–	5	5
Total	**267**	**268**	**267**	**267**	**266**	**264**	**266**	**266**	**271**	**268**	**271**	**271**	**68**	–	**68**	**68**
Short-term variable compensation (1 year)	167	226	–	536	113	152	–	361	101	135	–	320	28	–	–	90
Multi-year variable compensation:																
Long-term variable compensation (3 years)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Stock option plans (7 years)	–	417	–	5.200	–	403	–	6.500	–	296	–	5.133	257	–	–	3.000
Total	**434**	**911**	**267**	**6.003**	**379**	**819**	**266**	**7.127**	**372**	**699**	**271**	**5.724**	**353**	**–**	**68**	**3.158**

Actual contribution for the reporting period

	Brian Protiva				Christoph Glingener				Ulrich Dopfer				Scott St. John			
	Chief executive officer				Chief technology officer & Chief operating officer				Chief financial officer				Chief marketing & sales officer (from October 1, 2017)			
(in thousands of EUR)	**2017**	**2016**	**2017 (Min)**	**2017 (Max)**	**2017**	**2016**	**2017 (Min)**	**2017 (Max)**	**2017**	**2016**	**2017 (Min)**	**2017 (Max)**	**2017**	**2016**	**2017 (Min)**	**2017 (Max)**
Fixed compensation	253	253	253	253	253	253	253	253	253	253	253	253	63	–	63	63
Fringe benefits	14	15	14	14	13	11	13	13	18	15	18	18	5	–	5	5
Total	**267**	**268**	**267**	**267**	**266**	**264**	**266**	**266**	**271**	**268**	**271**	**271**	**68**	–	**68**	**68**
Short-term variable compensation (1 year)	167	226	167	167	113	152	112	112	101	135	100	100	28	–	28	28
Multi-year variable compensation:																
Long-term variable compensation (3 years)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Stock option plans (7 years)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Total	**434**	**494**	**434**	**434**	**379**	**416**	**378**	**378**	**372**	**403**	**371**	**371**	**96**	**–**	**96**	**96**

The compensation of the members of ADVA Optical Networking's supervisory board, beyond the reimbursement of out of pocket expenses, only consists of fixed compensation paid out quarterly.

The total compensation payable to the members of the supervisory board of ADVA Optical Networking for 2017 amounted to EUR 235 thousand, after EUR 229 thousand for 2016.

Furthermore, ADVA Optical Networking bears the cost of pecuniary damage liability insurance for all members of the supervisory board. During 2017, no loans or advance payments were granted to members of the supervisory board.

Detailed information on the compensation structure of the individual members of the management and supervisory boards can be found in note (36) to the consolidated financial statements.

Employees

On December 31, 2017, ADVA Optical Networking had 1,894 employees worldwide, including 27 apprentices (prior year: 1,764 including 21 apprentices).

On average, ADVA Optical Networking had 1,858 employees during 2017, up from 1,731 in 2016. Furthermore, there were 19 temporary employees each working for ADVA Optical Networking at year-end 2017 and 2016, respectively. During 2017, the increase in employees largely relates to the acquisition of MRV Communications, Inc., headquartered in Chatsworth, CA, USA.

Personnel expenses in the group increased from EUR 157.2 million in 2016 to EUR 171.6 million in 2017, representing 27.7% and 33.4% of revenues, respectively.

On December 31, 2017, ADVA Optical Networking SE had 572 employees, thereof 27 apprentices (prior year: 571 employees, thereof 21 apprentices). This corresponds to an increase of one employee or 0.2% versus the end of the prior year.

The breakdown of permanent employees of ADVA SE by functional area is as follows:

Employees by functional area (on December 31)	**2017**	**2016**	**Change**
Purchasing and production	157	168	-11
Sales, marketing and service	118	118	–
Management and administration	85	88	-3
Research and development	185	176	+9
Apprentices	27	21	+6
Total employees	**572**	**571**	**-1**

Personnel expenses in the ADVA SE increased from EUR 44.7 million in 2016 to EUR 47.4 million in 2017, representing 14.7% of revenues in 2017 compared to 11.6% in 2016.

The employee compensation packages comprise fixed and variable elements, and include stock options. These compensation packages enable employees to participate appropriately in the success of the group, and support employee retention, while at the same time rewarding individual efforts, teamwork, innovation and productivity. Furthermore, employees who perform exceptionally well, or who make suggestions for significant improvements are recognized through the group's spot award program. In addition, the group is committed to offering all employees comprehensive on-the-job training, as well as specific continuing education opportunities in order to advance their personal and professional development.

The group offers different types of continuing education programs through the ADVA Optical Networking university, based on employee development needs. These needs are identified, documented, and reviewed semi-annually, within an electronic performance appraisal and competency management system.

Within ADVA Optical Networking, all relevant local regulations for health and safety in the workplace are complied with, and in some countries are regularly monitored by independent engineering offices for safety in the workplace.

ADVA Optical Networking is committed to the creation of a workplace free of discrimination and harassment. The group recruits, hires, trains and promotes individuals on all job levels without regard to race, religion, ancestry, sexual orientation, marital status, national origin, age, gender and physical or mental disability. ADVA Optical Networking is committed to a fair and equitable workplace where everyone is a respected and valued member of the team. The group's core values (teamwork, excellence, accountability and motivation) and leadership principles (integrity & honesty, decisiveness and respect) guide employees and managers in all business activities.

An efficient employee representation without trade union ties is in place on a global basis, reflecting the international employee base and overall orientation of the group.

At its main production and development facility in Meiningen, Germany, ADVA Optical Networking currently provides 26 apprenticeship positions, which lead to professions as electronic technicians for devices and systems, and as office management assistant. In Meiningen, Germany, the company is among the most recognized apprenticeship providers for industrial electronics professions in its region. In addition, ADVA Optical Networking offers an active university student trainee program in Germany that provides on-the-job work experience to students pursuing degrees.

Risk report

ADVA Optical Networking's future development offers a broad variety of opportunities. It is however also subject to various risks, which in certain cases could endanger the group's continued existence. The management board has implemented a comprehensive risk management and internal control system that enables the detection of risks in a timely manner and allows the group to take corrective action and benefit from identified opportunities. An integral aspect of the group's strategy is its ability to anticipate developments in the marketplace and future customer needs. Special emphasis is given to product development, the quality of the group's products and the validation, selection and oversight of key business partners.

The future development offers many opportunities, but is also subject to risks

Risk management system

Since ADVA was founded in 1994, its business has become more diversified. The group markets its products and solutions in part via a variety of distribution partners but has become less dependent over the years due to continued investment in a direct distribution model in core geographies. Beyond focusing on enhancing revenue predictability, a comprehensive risk management system has been established. The risk management system is subject to scheduled reviews by the group's internal audit function.

Being a globally operating company, ADVA implemented its risk management system on the basis of applicable laws and regulations such as Germany's BilMoG and KonTraG and by taking into account common international standards and best practices such as the COSO framework and the ISO 31000 auditing standard. It is closely integrated with supporting management systems such as the group's compliance management system. The management board nevertheless recognizes that a risk management system cannot in all cases prevent the occurrence of events that may cause material damage to the group.

ADVA's strategic goals are the basis for its risk management system. These goals are organized into four areas, growth and profitability, innovation, operational excellence and people. The strategic goals are reviewed by both the management board and the supervisory board on a yearly basis and amended where appropriate. They also constitute the basis for the group's three-year business plan, which is reviewed and updated annually. Each of these goals is defined in detail and then bro-

The risk management system is based on strategic goals ken down into specific departmental and individual targets. The strategic goals are traced to each employee, so that every individual can focus and be evaluated on his/her own performance and contribution to ADVA's overall success.

Periodic and timely monitoring of key performance indicators

ADVA measures the accomplishment of its strategic goals against revenues, pro forma operating income[1] and net liquidity[2] as well as the non-financial criterion of customer satisfaction measured by the Net Promoter Score[3]. These metrics represent the group's key performance indicators. The management board sets target values for all four metrics for the year to come and measures actual values against the target values: revenues and pro forma operating income on a monthly basis, net liquidity on a quarterly basis and the Net Promoter Score on an annual basis. Corrective action is taken quickly should a deviation from the plan occur or be reasonably predicted to occur. This information is summarized and communicated to the management board in monthly, quarterly and yearly reports.

Monthly budget reviews and tight controls

Moreover, budgets are reviewed on a monthly basis and adjustments are made if necessary. The group's accounting, controlling and treasury departments provide globally consolidated reports on available cash funds and the development of margins and current assets (e.g. inventories and receivables) on a monthly and quarterly basis. These reports also include budgeted/forecast and actual revenues and expenditures. The structure and content of these reports must be adapted continuously to meet information requirements.

ADVA regularly monitors the credit-worthiness of all customers and updates credit limits as needed. Material expenditures and investments must be approved in advance through an electronic purchase order system. In conjunction with continuously updated revenue and cash forecasts, a detailed monthly preview of anticipated group development within the next three to twelve months is produced and communicated to the management board. Moreover, the group's accounting, controlling and legal departments review potential legal and litigation risks on a quarterly basis in order to obtain a reliable estimate of the potential loss, taking into account all relevant information and expectations. Finally, ADVA's management board discusses all significant business transactions with the supervisory board and obtains its approval if necessary.

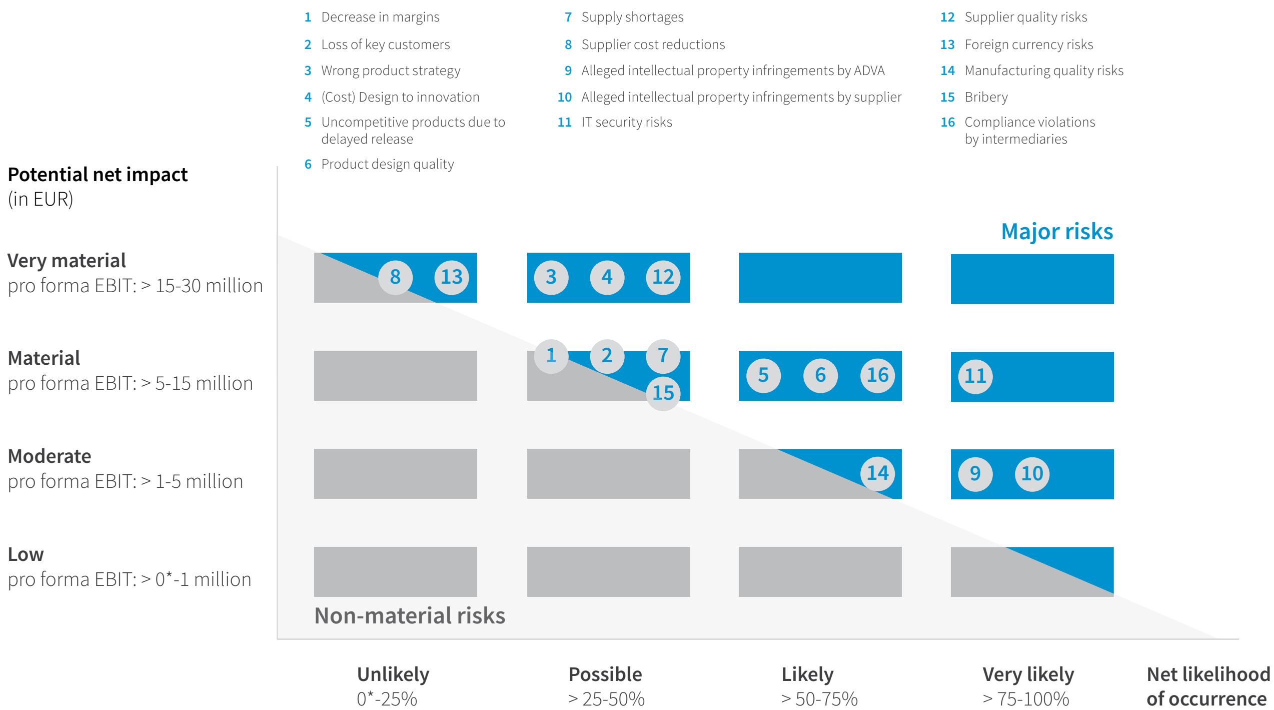
In order to ensure observance of all applicable laws and regulations and to support the group's ongoing growth and internationalization, the management board implemented a combined risk management and compliance function. Key compliance measures include a code of conduct, a range of group-wide policies, the training of employees and the active encouragement to report suspected incidents of non-compliance and to seek support when having questions. All implemented measures and processes for risk management as well as compliance are continuously reviewed and improved. Within 2017, the group implemented various improvements including a revised process for "bottom-up" risk identification and quantification by clearly differentiating between periodic and ad-hoc risk reporting.

ADVA differentiates between two main categories of risks and opportunities – those considered major and those considered non-material. A risk or opportunity is considered major if its expected net impact on the group's pro forma operating income exceeds EUR 1 million in terms of ADVA's three-year business plan. The expected net impact is calculated by multiplying the potential net impact of a particular risk or opportunity with its net likelihood of occurrence.

For each major risk the group assigns a dedicated risk owner who is responsible for defining and implementing an adequate and effective response for risk mitigation. Adherence with this process is monitored by the group's compliance function, which conducts structured reviews with each risk owner according to a defined schedule and at a minimum three times per year. Should any such risk materialize, the assigned risk owner has the responsibility to immediately report this to the management board. Independent of specific risk ownership, all employees of ADVA are furthermore asked to escalate additional obvious risk items directly and informally to the group's compliance function and the chief financial officer. Risk identification and reporting is supported by monthly reports and regular webinars in which the management board informs the global management team about the current business development, business outlook, group and departmental goals.

Based on the analytical tools and processes outlined above, ADVA ranked 16 risks as major risks at the end of 2017 (end of 2016: 12), which are discussed in detail below.

Overview on major risks 2018-2020



*Defined minimum thresholds for risk reporting

Growth and profitability risks

Decrease in margins (possible; material)

Procurement is a key focus area for customers and their cost-saving initiatives. Purchases, especially for multi-year projects are often conditioned on gradual price decreases. In addition, several products are essentially being commoditized with many competing vendors. The group has many preventive action plans in place. Most important is its focus on innovation. In order to successfully defend higher prices, the group consistently pushes the limits of new technology in its products, improves its processes, and communicates the value, reliability, scalability, cost-effectiveness, performance and technological leadership of its solutions to all of its customers.

Loss of key customers (possible; material)

The loss of key customers would have significant impact on ADVA's business. This risk may originate to some extent from changes in customer demands and the group's ability to meet these requirements reliably and in a timely manner. Additionally, mergers and acquisitions have the potential to negatively impact the group should this result in a customer choosing to consolidate vendors in a way that either reduces AD-

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VA's share of the customer spend or eliminates the use of its solutions. However, for most key revenue customers, the group has deployed thousands of systems over a multi-year period and, as a result, there is a certain dependency with these customers on ADVA and its products, which are integrated into the customer's workflows and processes. For key customers, the group furthermore ensures continuous performance and customer satisfaction through a dedicated team of professionals.

Innovation risks

Wrong product strategy (possible; very material)
The market for innovative connectivity solutions for cloud and mobile services is highly competitive and subject to rapid technological change. Competition in this market is characterized by various factors, such as price, functionality, service, scalability and the ability of systems to meet customers' immediate and future network requirements. Should ADVA be unable to quickly adapt to changing market conditions, customer requirements or industry standards, the group's development would be impacted negatively. Since some of the group's competitors operate in a broader market and have considerably more resources available due to their greater size, ADVA must continue to focus its efforts on those technologies and features that are expected to supersede the current ones. The likelihood of wrong development decisions is minimized by a series of preventive actions that include running advanced technology projects, running a team of navigators to decide on strategic direction, industry and competitor analysis, keeping the group's development roadmap up-to-date, testing product visions with customers, monitoring and influencing standardization and staying close to customers in order to identify differentiating technology opportunities.

(Cost) Design to innovation (possible; very material)
ADVA achieves cost leadership through its ability to scale economically and through the optimization of product design. The loss of cost leadership would drastically reduce the group's success in winning new business and would have a negative effect on gross and operating margins. The significant pricing pressure for innovative connectivity solutions must be met strategically by improving processes, controls and technology while maintaining adequate R&D budgets. A dedicated team identifies competitive price and cost targets for new products, monitors product cost development throughout the development process and negotiates, tracks and forecasts product and related component costs.

Uncompetitive products due to delayed release (likely; material)
High competition and rapid technological change are the decisive characteristics of the market for innovative connectivity solutions for cloud and mobile services. Continuous success not only requires the identification of innovative solutions for future network and customer requirements by also maintaining cost leadership, but to also release such innovations at the projected time as delays may undermine their competitiveness. As a result, ADVA implemented a joint development and operations organization ("DevOps") clustered into technology value streams in order to maximize effectiveness and break up barriers. All streams thereby operate according to one common tool-supported development process.

Product design quality (likely; material)
Increasing pressure on product development timelines and growing product complexities that need to be supported by limited R&D resources present challenges for product design quality. While timelines are largely driven by market and customer demands, the increase in product complexity is due to a variety of different factors, including technical requirements, legacy infrastructure, and the desire to address the needs of a maximum number of ADVA's growing customer base. For risk mitigation, the group implemented a tool-supported development process with clearly defined requirements for each development stage, realistic project planning including adequate risk management, and consistent and comprehensive testing during all development phases supported by transparent reporting of the achieved quality levels.

Supply shortages (possible; material)
ADVA sources product components either based on forecasts or upon receipt of a customer purchase order. Any shortage in the required material can thus have a significant negative impact on the group's performance. For mitigation, ADVA implemented tool-based processes for demand forecasting as well as the structured identification and consistent monitoring of suppliers, in particular suppliers of single source components, including the introduction of alternatives within the design phase of a new product.

Supplier cost reductions (unlikely; very material)
Similar to its customers, ADVA also expects annual cost reductions from suppliers. Cost leadership in sourcing product components is essential for the group's ability to scale and its continuous success. Any deviation from the forecasted cost reductions constitutes a substantial risk, which is mitigated by a dedicated organization being responsible for global sourcing of product components. Achievement of the group's annual cost reduction targets is supported by monthly and quarterly status reports to the group's management board.

Alleged intellectual property infringements by ADVA (very likely; moderate)
Third parties may assert that ADVA has violated their intellectual property rights and claim license fees, indemnities or a discontinuation of production and marketing of affected products. Related disputes could result in considerable cost to ADVA, while also diverting management and technical resources. For mitigation, the group has implemented adequate guidelines to avoid infringements in the first place. ADVA also uses and continuously extends its own patent portfolio as defense. A dedicated team is available to assess and appropriately act on any asserted intellectual property infringement.

Alleged intellectual property infringements by supplier (very likely; moderate)
Besides ADVA itself, the group's suppliers may also be approached by third parties claiming intellectual property infringements. As a consequence, the group may be unable to source a particular component as required for its own solutions. To protect against such risk, ADVA's contract templates include intellectual property provisions to ensure authorized use of third-party intellectual property and to indemnify the group against the resulting damage of any infringement. In addition, multi-sourcing of components is pursued wherever technologically and economically feasible.

Operational excellence risks

IT security risks (very likely; material)
Stolen credit card information, personal data and business data from major companies have become the topic of frequent business headlines. Unauthorized access to the group's information systems and confidential data can potentially cause material damage. ADVA implemented technical and non-technical means to reduce its IT security risk exposure, e.g., by investing in IT security resources and by implementing a variety of technological and process-based safe-guards, including a so-called "business continuity" solution.

Supplier quality risks (possible; very material)
ADVA's product quality is significantly influenced by the product quality of its suppliers. Failure of a single part may cause the whole system to be dysfunctional. Early detection of supplier deficiencies is thus critical for the group's success. Deteriorating quality could not only lead to delays in installation, return of products or cancellation of orders, but also to penalties and lawsuits, contract terminations and liability claims. Preventive actions to avoid quality deterioration include close collaboration with key suppliers during the development of critical components, structured and tool-based processes for supplier and component qualification, including the identification of alternatives, robust contracting including adequate indemnifications, and regular audits of key suppliers.

Foreign currency risks (unlikely; very material)
Due to a major portion of the group's revenues and costs being generated in foreign currencies, ADVA's profit is particularly subject to fluctuations in the EUR/USD, GBP/USD, EUR/ILS and EUR/PLN exchange rates. In 2017, on a net basis, the group realized significant GBP inflows and USD outflows. To combat fluctuations, the USD net cash flows are in part hedged against GBP using forward exchange agreements. The duration of such agreements follows ADVA's communication to the capital markets. With the acquisition of MRV Communications, the group substantially decreased its exposure in USD as costs and revenues are increasingly balanced. Short-term, the acquisition nevertheless increased the group's exposure due to increased financial liabilities in USD. In addition, also the group's mid-term risk exposure towards ILS substantially increased due to MRV Communications' material development activities in this region. Information on the sensitivity of the group's net income to fluctuations in foreign exchange rates is provided in note (29) to the consolidated financial statements.

Manufacturing quality risks (likely; moderate)
ADVA outsources its production to contract manufacturers located in some of the world's most efficient locations. With increasing product complexity, a certain manufacturing quality risk emerges. For mitigation, the group selects contract manufacturers only after careful due

diligence and supported by robust frame contracts providing adequate protection for ADVA. All manufacturing is supervised by a dedicated organization for production industrialization. ADVA's quality assurance processes include the tight control of the approved components, rigid and tool-based dialogue for product change management, the definition and continued monitoring of test procedures, systematic acquisition and monitoring of manufacturing and quality statistics and monthly management business reviews.

People risks

Bribery (possible; material)

ADVA markets its products and services around the world. In recent years, its customer base and operational setup have become substantially more international. For ensuring ethical behavior in all business situations, robust procedures and controls were implemented. If violated, the consequences for the Group could be severe, including material fines, the breach of customer contracts and a general loss of reputation. ADVA has a dedicated anti-corruption program in place, which is based on a strong tone from the top and supported by a central compliance department and dedicated regional compliance officers, means for (anonymous) reporting of concerns, tight controls on all financial transactions, continuous and risk-based monitoring of activities and the periodic auditing of all implemented measures by an independent function.

Compliance violations by intermediaries (likely; material)

ADVA markets its products and solutions in part via a variety of distribution partners, but has become less dependent on these partners over the years due to continued investment in a direct distribution model in core geographies. Outside of such core geographies, economies of scale, legal and contractual requirements as well as existing customer relationships often favor indirect distribution via so called value-added reseller. While the group's ability to control the partner's activities are limited, compliance violations by intermediaries may, under specific circumstances, nevertheless be attributed to ADVA with potentially severe consequences. For mitigation, ADVA implemented robust risk-based due diligence procedures including upfront vesting of new intermediaries and periodic reviews. Resale contracts furthermore include robust compliance representations. Commission-based setups are avoided where possible.

Minor and financial risks

Beyond the 16 major risks discussed above, there is a broad range of minor risks that can also have a negative impact on ADVA. These uncertainties include risks resulting from price changes related to long carrier investment cycles and to distribution partnerships, customer payment risks, liquidity risks such as the inability to secure financing and the risk of early maturity of loans due to the breach of material contractual obligations in connection with loan agreements and committed borrowing facilities (see details in note (13) to the consolidated financial statements), cash flow risks related to changes in interest rate levels, balance sheet risks such as the impairment of intangible assets and, applicable to ADVA Optical Networking SE, shareholding in other (group) entities, legal risks pertaining to potential claims under product and warranty liabilities, general macro-economic risk and risks related to acquisitions. However, the management board of ADVA does not consider any of these or other uncertainties to be likely or to have a major impact on the group.

Changes to the overall risk situation and the classified major risks in 2017

During 2017, ADVA's major risks changed largely due to the group's improved process for risk reporting, quantification and categorization. Specifically, 10 risks remained the same as in 2016 but were partially adjusted in scope or divided into more specific (major) risks and hence renamed. In addition, two risks considered as major in 2016 were no longer considered as such in 2017. The overall risk situation slightly decreased in particular due to the group's growing diversification and internationalization due to the acquisition of MRV Communications group.

Opportunity identification

The identification of opportunities is largely identical to the processes, tools and concepts as described in the "risk management system" section above. The annual definition of the group's opportunities are supported by the management board, which has regular discussions with key customers and industry thought leaders in order to identify new opportunities and technological trends. Throughout the group, agile processes maximize the group's ability to take advantage of newly identified trends. Current opportunities are ranked as follows:

Acceleration of bandwidth growth (likely; very material)
The digitization of society continues to gain momentum. More and more day-to-day applications are migrating to the cloud. The internet of things, in particular the industrial IoT (in Germany commonly referred to as Industry 4.0), self-driving cars and artificial intelligence – the possibilities in a networked world seem endless. While much of the media interest is focused on innovative use cases for the cloud, the awareness that a reliable, global and secure communications infrastructure with high availability is strategically important, is growing behind the scenes. Bandwidth growth and the expansion of fiber-based infrastructure will accelerate this further. Specialists in optical network and transmission technology such as ADVA will benefit from the rising demand.

Virtualization of network functions (likely; very material)
With more and more enterprise applications and data moving into the cloud, service providers are rethinking their strategies at the network edge. While they have been primarily offering connectivity, communication service providers are increasingly seeing the opportunity to convert some of the enterprise IT spend into revenue for their managed services. The virtualization of network functions helps them to seize that opportunity. Thanks to NFV, service providers can create and deliver new services quickly anywhere on the globe. ADVA has the world's most comprehensive portfolio of fiber-based Ethernet access solutions. In addition to the FSP 150 product family, it is the Ensemble software architecture that provides further competitive differentiation. In 2017, the company successfully qualified its Ensemble Connector software for use in Verizon's "universal CPE" solution, earning its first software revenues. This architecture is also being pursued by other CSPs and leads to a convergence of previously separate markets for Layer 2 Ethernet access solutions and so-called Layer 3 solutions. The later was based on router technology and could not previously be addressed by ADVA. The group sees potential for numerous new customer wins and a higher proportion of software sales in this area.

Information security and regionalization (very likely; material)
Large companies are concerned about the security of their data and business processes, and are therefore building new data protection and storage solutions, which in turn require transmission technology to connect the geographically dispersed sites. In addition, the EU's GDPR, which will come into effect in 2018, will lead to increased data protection requirements for all companies operating in Europe. In the meantime, the signs of protectionism and national demarcation are multiplying on the political world stage. In many places, efforts are being made to limit unrestricted globalization, and demands for regional solutions are becoming louder. This inevitably affects the technical realization of the cloud as well as the selection of the corresponding equipment suppliers. Many of the big cloud providers are US-based companies expanding their international presence. On the other hand, there is a growing number of smaller data center operators building specialized, customized and local customer solutions. ADVA is the leading European specialist in transmission technology and the trusted partner of thousands of companies. ADVA's ConnectGuard™ security portfolio provides customers with comprehensive protection in different network scenarios and brings numerous competitive advantages. ADVA, a European company with strong visibility and presence in data center and network operators worldwide, expects a positive market environment and solid growth with above-average margins.

Increasing strategic importance of synchronization technology (very likely; material)
The ongoing expansion of mobile networks towards LTE-advanced (4.5G), as well as the preparations of mobile network operators for the fifth generation of mobile technology (5G), lead to more stringent requirements for time and frequency synchronization in carrier networks. ADVA's Oscilloquartz technology is industry-leading and has won numerous competitive tenders in 2017. The Oscilloquartz technology is gaining momentum with customers and is expected to make an increased contribution to consolidated revenue and margin as early as 2018. In addition to the increasing demands of mobile network operators for high-precision synchronization solutions, Oscilloquartz technology is also gaining traction in other applications. The synchronization of global databases of internet content providers, the synchronization of power grids with decentralized power generation as well as requirements from the fields of meteorology offer additional opportunities for this portfolio.

Portfolio cross-selling and further market consolidation (likely; material)
The acquisition of MRV Communications group broadens ADVA's global customer base and provides inroads to networks that were previously not accessible. Since ADVA covers a much wider range of applications, the group can offer more solutions to the inherited customers. Conse-

quently there is a high likelihood that additional network applications within the established customer base of MRV Communications can be addressed and thus more revenue generated. Overall, it should be noted that the number of network suppliers in the market has declined significantly in recent years. Numerous smaller manufacturers of optical transmission technology and Carrier Ethernet access solutions have been absorbed. On the other hand, some very large companies have merged or withdrawn from the optical transmission market. ADVA is the remaining European specialist for this technology and has established itself as a trusted partner to hundreds of network operators and thousands of companies. Through the acquisition of Overture in 2016 and the acquisition of MRV Communications in 2017, the group has itself contributed to the consolidation and gained more strength and relevance.

Changes to the overall opportunity situation and the classified major opportunities in 2017

Compared to the previous year, the company's view of the opportunity situation has evolved. The revenue potential originating from internet content providers – the customer group that was responsible for the rapid revenue growth in 2015 and 2016 – is considered to be less relevant for top-line growth in 2018. On the other hand, the takeover of MRV Communications brings new revenue opportunities through the expanded customer base (cross-selling) and should improve the company's cost base due to the expected synergy effects. Thus, the opportunities for business development in 2018 are centered less on additional revenue growth and more on margin improvement and increasing profitability. The total number of major opportunities remained unchanged.

Overall opportunity and risk assessment

Opportunities outweigh the identified risks; no current risks to the going concern of the group

Based on careful inspection of the group's opportunity and risk profile at the time of the preparation of the group management report, the management board of ADVA believes that the group's opportunities in the market for innovative connectivity solutions for cloud and mobile services clearly outweigh the risks identified. The management board has not identified any risks that pose a danger to ADVA's survival or endanger the future of the group. ADVA's overall balance between opportunity and risk is at about the same level as it was at the time of the publication of the 2016 group management report.

Internal controls related to financial reporting

Internal controls related to financial reporting designed around COSO framework

The management board of ADVA is responsible for establishing and maintaining an adequate system of internal controls. It has implemented an internal control system that enables the management board to ensure completeness, accuracy and reliability of financial reporting at group and legal entity level. When designing its internal control system, ADVA used the COSO framework as a key reference and source of guidance. The internal control over financial reporting is designed to provide reasonable assurance regarding the reliability of financial reporting. No system of internal control over financial reporting, including one determined to be effective, may prevent or detect all misstatements.

Control environment

Leadership principles built on integrity, honesty, decisiveness and respect

The control environment is the foundation of the internal control system in every organization. ADVA fosters an environment of openness and integrity with a clear commitment to excellence, competence and the development of its employees. The group's leadership principles of integrity/honesty, decisiveness and respect are based on this philosophy, and the culture is reflected in the overall tone set by the management board. ADVA has a clear organizational structure with well-defined authorities and responsibilities. The bodies charged with the governance and control of the group (management board, supervisory board) actively participate in the running and steering of the business. The business is managed on a global basis and run via functional areas. Financial steering of the group and financial stewardship for individual legal entities is handled by the chief financial officer, under the audit committee's control.

Risk assessment

As part of the internal controls related to financial reporting, the risk assessment follows the process described in the "risk management system" section.

Control activities

Information technology controls and four-eye principle

At an individual entity level, ADVA's larger and more complex business units use an integrated enterprise resource planning solution, which also serves as general ledger system. Information technology controls have been implemented to restrict user access, ensure proper authorization of changes to the system and efficient handling of user help desk requests. Specific processes are defined and applied for the following reporting cycles in these business units: cash reporting, revenue recognition, accounts payable, capitalization of development expenses and recognition of subsidies for research, inventory reporting, fixed assets, payroll and provisions. ADVA carries out monthly analytical reviews and quarterly balance sheet reviews based on a four-eye principle between the local accounting and the consolidation functions.

For the consolidated financial statements, the balance sheet and income statement positions requiring a significant degree of judgment and estimation when being valued are determined and analyzed with the involvement of management. This is the case for impairment testing reviews (annual or when a triggering event occurs), capitalization of development projects (when the industrialization stage is reached) and tax reporting and review, specifically deferred taxes (quarterly). ADVA additionally carries out monthly intercompany reconciliations as part of the consolidation process and analytical reviews of actual vs. expected results based on a four-eye principle between the financial planning and the consolidation functions.

All business units follow a set of global accounting policies and reporting guidelines. The financial statements preparation process is monitored globally via a calendar that is communicated to all involved parties on a monthly basis. Checklists are completed both in the individual business units as well as at the consolidation level to ensure completeness of all closing steps. Periodic reviews by group management are conducted to detect errors and omissions.

Fast and effective communication with management board

Information and communication tools

The internal control system at ADVA is supported by tools to store and exchange information, enabling the management board to make informed business decisions about financial reports and disclosures. The following components ensure proper information and communication for financial reporting:

- Accounting systems for individual entities are matched to the degree of complexity of the business unit. For most entities, an integrated enterprise resource planning system, which also serves as general ledger system, is in place. All local accounts are mapped to the group chart of accounts, which is used group-wide.
- The group consolidation is supported by a database tool which is linked to the enterprise resource planning and financial planning systems via interfaces. The global financial planning system is used extensively in analyzing actual vs. expected results and thus monitoring the results of the consolidation.
- There are global accounting policies for the more complex financial statement positions of the group and a group chart of accounts for all other financial guidance. Accounting policies are updated regularly and are implemented only after a thorough internal review and training.

Transparent reporting and corrective action

Internal monitoring

As part of the ongoing monitoring, the chief financial officer is informed about all material misstatements and control breakdowns at group and business unit level on a quarterly basis in the executive summary to the financial statements. The reporting of deficiencies follows the principles of open and transparent communication. Follow-up is ensured through regular calls where corrective actions are presented.

Internal audit function for financial processes

Internal financial audit

ADVA maintains an internal audit function to regularly assess financial processes and systems.

Based on an annual risk assessment, the internal audit function develops an audit plan proposal for the upcoming year. The proposed plan is presented to, aligned with, and finally ratified by the audit committee. The internal audit function performs internal audit reviews throughout the year according to the audit plan. Audit results are discussed with responsible managers. In case of identified process or system weaknesses, the internal audit function makes recommendations and improvement actions are defined and agreed with the responsible manager(s). The progress of these and their success on removing the identified weaknesses is reviewed by the audit function. The state of internal auditing is reported quarterly to the audit committee and includes feedback about the progress of audits performed versus the audit plan, about the results of terminated audit reviews and about improvements resulting from actions taken.

ADVA's risk management system is part of the internal audit universe and as such subject to recurring internal audit reviews.

Outlook

2017 was an unexpectedly difficult year for the network equipment industry. The increasingly strong demand for more bandwidth from network operators was offset by tough price competition from suppliers. While many industry analysts published positive market expectations at the beginning of 2017 – some still talked about an "optical megacycle" – it seems that 12 months later in retrospective ADVA's addressable market showed no growth. ADVA responded very quickly to the changed boundary conditions and, after the difficult third quarter of 2017, quickly adjusted the company's cost base. Thus, in the fourth quarter, the course was set for a return to growth and profitability. The company's outlook for 2018 is positive.

The statements in this chapter apply to the ADVA group as well as to ADVA Optical Networking, SE. Further details on the projected market environment up to the year 2021, as well as the resulting opportunities, can be found in the "General economic and market conditions" section and in the "Business overview" section.

In order to ensure sustainable corporate success, ADVA focuses on the following long-term strategic objectives:

- Grow global revenues and profitability through extensive sales and marketing activities, focusing on large customers, new customer acquisition and the service and software business.
- Expand the group's proven innovation leadership and increase market share by meeting strategic customers' demand for innovative connectivity solutions.
- Maintain operational excellence by further focusing on industry-leading processes and best-in-class execution, ensuring product and service quality leadership, improved efficiency and increased overall customer satisfaction.
- Recruit, retain, motivate, educate and nurture the group's employees to sustainably achieve high levels of performance, personal growth and job satisfaction, while keeping employee turnover low.

Looking back at 2017, ADVA made progress in meeting only a few of these strategic elements:

2017 revenues were down 9.2% compared to 2016. This development lagged considerably behind the management board's expectations as communicated in the 2016 annual report. The board had aimed for a further increase in revenues above market average in 2017. As already mentioned above, contrary to the forecasts at the beginning of 2017, ADVA's addressable market did not show any appreciable growth. The continued increase in demand for more bandwidth was offset by fierce competition and the associated price erosion in most areas. In addition, the group's revenue decline compared with 2016 is attributable to two customer-specific events in North America. In the middle of the year, a large internet content provider significantly reduced its orders. Shortly after, in the third quarter, a second major customer also significantly reduced its order volume due to a merger. ADVA was among several suppliers to be negatively impacted by this, and it was not able to compensate for these two unforeseen events in the remaining months of the fiscal year. On a positive note, the company reacted immediately to the new boundary conditions, adjusted its cost structure, and returned to growth and profitability in the fourth quarter.

The group's pro forma operating[1] result of EUR 19.5 million, or 3.8% of sales, in 2017 was EUR 3.9 million lower than the EUR 23.4 million reported in 2016, or 4.1% of sales. As a result, the management board's expectation in the 2016 annual report that the pro forma operating[1] result would exceed the 2015 level was not reached. At EUR 4.4 million, or 0.9% of sales, operating profit in 2017 was also lower than the EUR 19.4 million, or 3.4% of sales, achieved in 2016. The decline is attributable to the previously described negative revenue development in North America.

As for innovation leadership, ADVA made good progress in several areas during the 2017 fiscal year. The integration of the MRV portfolio and the associated expansion of the FSP 150 product family have further strengthened the company's competitiveness in the area of cloud access solutions. Under the "Empowering the Network Edge" campaign, the extended service catalog was advertised in this market. In addition, thanks to the significant development efforts on network function virtualization (NFV), a major breakthrough was achieved. The software solution Connector, marketed under the Ensemble label, was selected by Verizon, one of the major US carriers, as part of its universal customer premises equipment (uCPE) solution. In optical transmission technology, the past fiscal year was somewhat overshadowed by difficulties ramping the FSP 3000 CloudConnect™. However, these were successfully resolved during the year and the product has now been delivered to numerous customers. With the introduction of new features such as MicroConnect™, TrueTime™ and OpenFabric™ in June 2017, ADVA was able to further expand the capabilities of the FSP 3000 platform and further enhance its competitiveness. Under the Oscilloquartz brand for synchronization technology, the company pioneered the industry with the development of the OSA 5420, a milestone in the field of flexible network synchronization.

Overall, the company's solution portfolio is more versatile and competitive than ever. All of the technologies in which the group invests are strategically significant and valuable for advancing global digitalization. ADVA is thus well positioned to support its customers in building and expanding their networks and to benefit from the megatrends cloud and mobility, as well as the internet of things.

As far as operations are concerned, ADVA has further reinforced the excellent quality of its processes. Thanks to an innovative, globally standardized process landscape and an efficient IT infrastructure, US rival MRV, acquired in August, was integrated in just a short time.

In response to continued pricing pressure, North American revenue decline and the acquisition of MRV, the group launched a restructuring program in August with the goal of quickly aligning its operating[1] costs with the new business environment and timely leveraging synergies from the acquisition of MRV. This resulted in one-off costs of EUR 9.4 million. The acquisition of MRV was financed through loans of EUR 55.0 million. As a result, net liquidity[2] at the end of 2017 was negative at EUR -38.2 million. This was EUR 63.7 million lower than the net liquidity[2] of EUR 25.5 million at the end of 2016, but takes into account the purchase price of MRV. However, the increase in the lower double-digit million range expected in last year's outlook was missed even when excluding the acquisition.

As for customer satisfaction, ADVA uses the Net Promoter Score[3] metric to track progress. The company could not quite reach the all-time record high of 60% from the previous year. However, by achieving 56%, the high, positive level of at least 40% aspired to by the management board was once again clearly exceeded.

With attractive compensation programs and a rewarding work environment with comprehensive education opportunities, the group was able to largely maintain the high motivation of its employees and moderate turnover rates in 2017. With the acquisition of MRV, the number of employees in August 2017 initially increased by more than 200. However, a multi-site restructuring program was initiated to leverage synergies and respond to the decline in revenues in the second half of the year. Within this framework, site reductions and a reduction in workforce close to pre-acquisition levels have been implemented. Since the restructuring program has been aligned with business planning for 2018, ADVA will further increase and optimize the focus and quality of its international workforce.

Following the decline in revenues in the past financial year, the company aims to return to moderate sales growth in 2018. In addition, the profitability of the group measured by pro forma operating[1] income as a percentage of revenues is expected to rise to a mid-single-digit level. Against the backdrop of a weaker US dollar and a slightly resurgent British pound, the following factors, which are also described in the "Risk report" section under "Opportunities", will play a decisive role:

- The digitalization of society is progressing. More and more applications for daily life are migrating to the cloud. Thus, the strategic importance of a reliable, global and secure communication infrastructure is growing. The construction and expansion of fiber-based infrastructure is set to accelerate even further. Specialists in optical networking and transmission technology such as ADVA will benefit from this development.
- The virtualization of network functions is changing the business models of network operators, enabling them to provide innovative and customer-optimized services globally. In addition to the FSP 150 product family, it is ADVA's Ensemble software solution that provides additional market differentiation. NFV is driving convergence in the markets for access solutions and expanding ADVA's addressable market. The group sees potential for numerous new customer wins and a higher proportion of software sales in this area.
- Security in information technology is becoming increasingly important and more stringent data protection requirements are impacting on the cloud. The company expects a regionalization in the technical implementation of the data centers and in the selection of the corresponding suppliers. ADVA is the leading European specialist in transmission technology and a reliable partner for thousands of companies. Its ConnectGuard™ security portfolio provides customers with comprehensive protection in different network scenarios and brings numerous competitive advantages. ADVA, as a European company with strong visibility and presence with data center and network operators worldwide, is well positioned in this field.

- The strategic importance of synchronization technology continues to increase. The progressive expansion of mobile networks towards LTE-Advanced (4.5G), as well as the efforts of network operators to prepare for the fifth generation of mobile technology (5G), exacerbate requirements regarding time and frequency synchronization in networks. ADVA's Oscilloquartz product portfolio is industry-leading, winning numerous sync bid tenders in 2017, and promises to outperform revenue growth and margins in 2018.
- The acquisition of MRV Communications group broadens ADVA's customer base worldwide and creates access to networks where the group was previously not present. With ADVA covering a much wider range of applications than MRV, the group can now offer more solutions to MRV customers. As a result, there is a chance that additional network applications in the MRV customer base can be addressed and thus more revenue generated. Overall, the number of network suppliers on the market has declined significantly in recent years. As a result of this market consolidation, ADVA's position in the global environment has improved, and the company's profile as a European specialist and reliable partner for innovative network technology is now even sharper.

In a predominantly positive global economy, digitalization continues to advance. The global megatrends cloud and mobility continue to drive demand for scalable, secure and environmentally sustainable communications infrastructure. ADVA's commitment to being a trusted partner for connecting, extending and assuring the cloud is positioning the company as an attractive supplier in important growth markets. The combination of application-optimized innovation, short development and delivery times, a broad and growing customer base, and a balanced distribution model distinguishes ADVA from comparable companies and ensures a profitable business model.

Based on these factors, and taking into account planning parameters such as personnel and currency exchange rates, ADVA's management board expects the group to grow revenues in a moderate single digit percentage range. Under this assumption, the management board further expects its 2018 pro forma operating[1] income to increase in the mid-single-digit percentage range. Net liquidity[2] in 2017 was reduced through the acquisition of MRV Communications group. The management board expects an increase from the current level with a gradual return to positive levels by early 2019. The group will continue to selectively invest in product development, technology and revenue-generating opportunities. In addition, the management board expects, due to the continued focus on innovation, quality and service, that customer satisfaction measured by 2018's Net Promoter Score[3] will once again be at high positive levels of minimum 40%. Actual results may differ materially from expectations if risks materialize or the underlying assumptions prove unrealistic. The major risks facing ADVA are discussed in the "Risk report" section.

Meiningen, February 20, 2018

Brian Protiva	Christoph Glingener
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7 IFRS Consolidated Financial statements

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Consolidated statement of financial position

(in thousands of EUR)	Note	Dec. 31, 2017	Dec. 31, 2016
Current assets			
Cash and cash equivalents			
Trade accounts receivable	(8)	58,376	84,871
Inventories	(9)	81,327	78,474
Tax assets	(10)	81,694	92,800
Other current assets	(22)	1,438	1,474
Total current assets	(11)	9,804	10,742
Summe kurzfristige Vermögenswerte		**232,639**	**268,361**
Non-current assets			
Property, plant and equipment	(12)	26,898	25,126
Goodwill	(12)	68,167	41,538
Capitalized development projects	(12)	85,175	76,263
Intangible assets acquired in business combinations	(12)	30,505	14,284
Other intangible assets	(12)	6,280	2,145
Deferred tax assets*	(22)	10,614	12,659
Other non-current assets	(11)	3,741	4,176
Total non-current assets		**231,380**	**176,191**
Total assets		**464,019**	**444,552**

* According to IAS 12.74 deferred tax assets and liabilities have been set off in 2017 for the first time insofar as offsetting qualifications apply. Accordingly, prior year disclosure has been adjusted.

(in thousands of EUR)	Note	Dec. 31, 2017	Dec. 31, 2016
Equity and liabilities			
Current liabilities			
Financial liabilities	(13)	79,061	18,648
Trade accounts payable	(14)	39,193	73,290
Advance payments received		93	352
Other provisions	(16)	21,994	11,789
Tax liabilities	(22)	2,536	2,957
Deferred revenues		15,062	11,347
Other current liabilities	(14)	26,812	23,143
Total current liabilities		**184,751**	**141,526**
Non-current liabilities			
Financial liabilities	(13)	17,500	40,717
Provisions for pensions and similar employee benefits	(15)	5.822	4,705
Other provisions	(16)	1,478	1,507
Deferred tax liabilities*	(22)	16,867	6,916
Deferred revenues		7,402	6,971
Other non-current liabilities	(14)	3,178	3,263
Total non-current liabilities		**52,247**	**64,079**
Total liabilities		**236,998**	**205,605**
Stockholders' equity entitled to the owners of the parent company	(17)		
Share capital (Conditional capital EUR 4,576 thousand; prior year EUR 4,813 thousand)		49,736	49,499
Capital reserve		314,019	312,305
Accumulated deficit		-126,970	-148,502
Net loss/(income)		-4,228	21,532
Accumulated other comprehensive loss/(income)		-5,536	4,113
Total stockholders' equity		**227,021**	**238,947**
Total equity and liabilities		**464,019**	**444,552**

Consolidated income statement

(in thousands of EUR, except earnings per share and number of shares)	Note	2017	2016
Revenues	(18)	**514,471**	**566,686**
Cost of goods sold		-348,251	-400,397
Gross profit		**166,220**	**166,289**
Selling and marketing expenses		-62,889	-60,014
General and administrative expenses		-36,260	-32,252
Research and development expenses		-69,037	-60,468
Other operating income	(19)	6,959	6,613
Other operating expenses	(19)	-590	-801
Operating income		**4,403**	**19,367**
Interest income	(20)	186	382
Interest expenses	(15), (20)	-971	-442
Other financial gains and losses, net	(21)	-3,809	-292
Loss /(income) before tax		**-191**	**19,015**
Income tax (expense) benefit, net	(22)	-4,037	2,517
Net loss/(income) entitled to the owners of the parent company		**-4,228**	**21,532**
Earnings per share in EUR	(26)		
basic		-0.09	0.44
diluted		-0.09	0.43
Weighted average number of shares for calculation of earnings per share			
basic		49,607,289	49,409,011
diluted		50,177,479	50,075,063

Consolidated statement of comprehensive income

(in thousands of EUR)	Note	2017	2016
Net loss/(income) entitled to the owners of the parent company		**-4,228**	**21,532**
Items that possibly get reclassified to profit or loss in future periods			
Exchange differences on translation of foreign operations		-7,349	2,253
Items that will not get reclassified to profit or loss in future periods			
Remeasurement of defined benefit plans	(15)	-2,300	-2,544
Total comprehensive loss/(income) entitled to the owners of the parent company	(17)	**-13,877**	**21,241**

Items in the statement above are disclosed net of tax. The income tax relating to each component of other comprehensive income is disclosed in note (17).

In 2017 and 2016, no items were reclassified (recycled) from comprehensive income to profit or loss.

Consolidated cash flow statement

(in thousands of EUR)	Note	2017	2016
Cash flow from operating activities			
Loss/(income) before tax		-191	19,015
Adjustments to reconcile income/(loss) before tax to net cash provided by operating activities			
Non-cash adjustments			
Amortization of non-current assets	(12)	46,864	39,575
Loss from disposal of property, plant and equipment and intangible assets	(12)	409	78
Stock compensation expenses	(34)	1,259	1,051
Other non-cash expenses		589	492
Foreign currency exchange differences		-3,579	-833
Changes in assets and liabilities			
Decrease (increase) in trade accounts receivable		8,176	-1,018
Decrease (increase) in inventories		17,860	-14,099
Decrease (increase) in other assets		2,375	-1,861
Increase (decrease) in trade accounts payable		-38,905	26,301
Increase (decrease) in provisions		-12,386	-1,066
Increase (decrease) in other liabilities		6,329	-5,686
Income tax paid		-1,666	-599
Net cash provided by operating activities		**27,134**	**61,350**

(in thousands of EUR)	Note	2017	2016
Cash flow from investing activities			
Proceeds from government grants	(12)	90	–
Investments in property, plant and equipment	(12)	-10,559	-12,889
Investments in intangible assets	(12)	-44,014	-41,325
Net cash paid in the acquisition of affiliated companies	(6)	-36,213	-32,509
Interest received		158	350
Net cash used in investing activities		**-90,538**	**-86,373**
Cash flow from financing activities			
Proceeds from capital increase and exercise of stock options	(17)	1,029	421
Payments received from financial liabilities	(13)	55,000	35,000
Cash repayment of financial liabilities	(13)	-17,816	-18,324
Interest paid		-1,291	-1,318
Net cash provided by financing activities		**36.922**	**15,779**
Net effect of foreign currency translation on cash and cash equivalents		-13	265
Net change in cash and cash equivalents		**-26,495**	**-8,979**
Cash and cash equivalents on January 1		84,871	93,850
Cash and cash equivalents on December 31		**58,376**	**84,871**

Details on the preparation of the consolidated cash flow statement are included in note (25).

Consolidated statement of changes in stockholders' equity

(in thousands of EUR, except number of shares)	Share capital: Number of shares	Share capital: Par value	Capital reserve	Net income/ (loss) and accu-mulated deficit	Accumulated other com-prehensive income/(loss	Total stockholders' equity entitled to the owners of the parent company
Balance on January 1, 2016	**49,374,484**	**49,374**	**310,645**	**-148,502**		**215,921**
Capital increase, including exercise of stock options	124,450	125	296			421
Stock options outstanding			1,364			1,364
Net income				21,532		21,532
Exchange differences on translation of foreign operations					2,253	2.253
Remeasurement of defined benefit plans					-2,544	-2,544
Total comprehensive income				21,532	-291	21,241
Balance on December 31, 2016	**49,498,934**	**49,499**	**312,305**	**-126,970**	**4,113**	**239,947**
Capital increase, including exercise of stock options	236,615	236	793			1,029
Stock options outstanding			921			921
Net loss				-4,228		-4,228
Exchange differences on translation of foreign operations					-7,348	-7,348
Remeasurement of defined benefit plans					-2,300	-2,300
Total comprehensive loss				-4,228	-9,648	-13,876
Balance on December 31, 2017	**49,735,549**	**49,735**	**314,019**	**-131,198**	**-5,535**	**227,021**

Details on changes in stockholders' equity are presented in note (17).

Notes to the consolidated financial statements

General information

(1) Information about the company and the group

ADVA Optical Networking SE (hereinafter referred to as "the company" or "ADVA SE"), Märzenquelle 1-3, 98617 Meiningen, Germany is a Societas Europaea, registered as HRB 508155 at the commercial register in Jena. The management board authorized the consolidated financial statements for the year ended December 31, 2017 for issuance on February 20, 2018.

The ADVA Optical Networking group (hereinafter referred to as "ADVA Optical Networking", "the group" or "ADVA group") develops, manufactures and sells optical and Ethernet-based networking solutions to telecommunications carriers and enterprises to deliver data, storage, voice and video services.

Telecommunications service providers, private companies, universities and government agencies worldwide use the group's systems. ADVA Optical Networking sells its product portfolio both directly and through an international network of distribution partners.

Significant accounting policies

(2) Basic Principles for the Preparation of the Consolidated Annual Financial Statements

The group's consolidated annual financial statements for the financial years ended December 31, 2017 and December 31, 2016 are prepared in accordance with the International Financial Reporting Standards (IFRS) published by the International Accounting Standards Board (IASB), as applicable in the European Union (EU) in consideration of interpretations of the Financial Reporting Interpretations Committee (IFRIC) and the applicable additional German statutory regulations according to § 315e Abs. 1 HGB. The consolidated financial statements have been prepared under the historical cost convention, as modified by the valuation of certain derivative financial instruments and share-based compensation transactions at fair value through profit and loss.

The financial year correlates with the calendar year. The consolidated annual financial statements are presented in EUR. Unless otherwise stated, all amounts quoted are in thousands of EUR. The balance sheet is separated into current and non-current assets and liabilities. The classification of income and expenses in the income statement is based on their function within the entity. When items on the balance sheet and in the income statement are summarized in the interest of clarity, this is explained in the notes to the consolidated financial statements.

The annual financial statements of the individual subsidiaries of the holding company ADVA Optical Networking SE, as subsumed in the consolidated annual financial statements, are all prepared using the same accounting and valuation policies and the same balance sheet date.

In 2017, deferred tax assets and liabilities have been netted according to IAS 12.74 for the first time as far as netting requirements apply. To improve comparability prior year information has been adjusted accordingly. The prior year adjustment mainly resulted in lower total assets. Equity and net result remain unchanged. For further details please refer to note (22) Income taxes.

(3) Effects of new standards and interpretations

The accounting policies followed are consistent with these of the prior financial year, except for the adoption of new and amended IFRSs and interpretations (IFRICs) during the year.

Standards, amendments and interpretations applicable for the first time in 2017

In 2017, following standards and interpretations have been adopted for the first time.

Standard	Topic	First-time adoption*	Expected impact on the financial position and performance
Amendments to IAS 12	Recognition of deferred tax assets related to unrealized losses	Jan. 1, 2017	none
Amendments to IAS 7	Disclosure initiative	Jan. 1, 2017	none

* To be applied in the first reporting period of a financial year beginning on or after this date.

New accounting requirements not yet applicable for first-time adoption

The IASB and the IFRIC have issued further Standards and Interpretations in 2017 and previous years that are not applicable for the financial year 2017. In addition, the first-time adoption is partly still subject to endorsement by the EU.

Standard	Topic	First-time adoption*	Expected impact on the financial position and performance
IFRS 9 (2014)	Financial instruments	Jan. 1, 2018	refer to following sections
IFRS 15 including relevant clarifica-tions	Revenue from cont-racts with ustomers	Jan. 1, 2018	refer to following sections
IFRS 16	Leases	Jan. 1, 2019	under review
Amendments to IFRS 2	Share-based payment	Jan. 1, 2018	none
Amendments to IFR 4	Insurance contracts	Jan. 1, 2018	none
Amendments to AS 40	Investment property	Jan. 1, 2018	none
Annual impro-vements 2016	The improvements include changes to: IAS 28 – Investments in associates and joint ventures IFRS 12 – Disclosure of interests in other entities as well as editorial amendments to IFRS 1	Jan. 1, 2018	none
IFRIC 22	Foreign currency transactions and ad-vance considerations	Jan. 1, 2018	none
IFRIC 23	Uncertainty over inco-me tax treatments	Jan. 1, 2019	under review

* To be applied in the first reporting period of a financial year beginning on or after this date.

IFRS 9 (2014) in its final version replaces IAS 39 Financial instruments: Recognition and measurement. It supersedes all regulations previously published. The standard includes requirements for classification and valuation of financial assets. In addition, a new impairment model based on expected payment defaults is implemented. Furthermore, IFRS 9 contains new hedge accounting rules.

ADVA Optical Networking will apply the new standard in the financial year 2018 for the first time. The first-time application will result in changes in the classification and valuation of other investments and trade accounts receivable. Investments currently classified as available for sale financial asset (thereof one assets classified as available for sale) will be accounted for as financial asset at fair value through profit and loss in future reporting periods. The values reported according to IAS 39 regulations for available for sales instruments represent the fair value according to IFRS 9.

From 2018, trade accounts receivable that are subject to an agreement for sale of accounts receivable will be recognized at fair value through profit and loss. They will be presented as a separate item in the notes to the financial statements. Due to the short-term nature of these receivables the carrying amount corresponds with the fair value at the reporting date.

The new impairment model changes the calculation of impairment from an incurred loss model to an expected credit loss model. Due to the first-time application of this new model in 2018 impairment charges will be adjusted by approximately EUR -448 thousand.

As ADVA Optical Networking does currently not apply the specific hedge accounting rules no impact on the financial position and performance of the group is expected from the related changes in IFRS 9.

IFRS 15 replaces IAS 18 which covers contracts for goods and services and IAS 11 which covers construction contracts. The new standard specifies how and when revenues will be recognized based on a single, principles based five-step model to be applied to all contracts with customers. Additionally, the standard defines comprehensive disclosure requirements. ADVA Optical Networking has started a global project for the implementation of the new standard. The first-time adoption will be applied prospectively for financial periods starting January 1, 2018. The impact of the change will be recognized in 2018 and future periods. The adoption of IFRS 15 requires changes in the group's accounting policies and affects mainly the presentation of the issues described in the following section.

IFRS 15 requires separate presentation of contract assets and contract liabilities in the balance sheet. As of January 1, 2018, this will result in reclassifications of receivables, in relation to service contracts and contract liabilities in relation to expected volume discounts, rights to return and a customer loyalty program which are currently included in other balance sheet line items. Following items were identified and illustrate the requirements for reclassifications and changes in recognition as of January 1, 2018:

1. Accounts receivables and contract liabilities of EUR 4,000 thousand, each, in relation to service contracts which were still outstanding for payment at the balance sheet date and have thus previously not been recorded will be recognized.
2. Liabilities amounting to EUR 679 thousand in relation to expected volume discounts and refunds to customers previously presented as current provisions will be reclassified to contract liabilities.
3. Liabilities of EUR 284 thousand in relation to the customer loyalty program and outstanding credit notes previously presented as reduction from trade receivables will be presented as contract liabilities.
4. Accounts receivables amounting to EUR 945 thousand and corresponding contract liabilities of EUR 945 thousand in relation to contracts which requires a pre-payment from the customer previously not recognized will be reported separately.
5. A contract asset of EUR 288 thousand in relation to a conditional payment and the respective revenues were previously not recognized. Due to changed definition of "control" under IFRS 15 the revenues will be recognized upon delivery.
6. Liabilities amounting to EUR 22,464 thousand in relation to prepaid service contracts previously recognized as deferred revenue will be reclassified to contract liabilities.

On January 13, 2016, the IASB published IFRS 16 Leases regarding accounting of lease contracts. The new standard will replace IAS 17 and all related interpretations and implements a consistent lease accounting model. Hence, lessees will have to recognize assets (right to use) and lease liabilities for all lease contracts with terms over 12 months. The current analysis showed that the group has facility and office rents as well as lease contracts for company cars that will have to be recognized as lease assets in the future. Furthermore, no multi-component contracts or other contracts requiring recognition according to IFRS 16 exist. The company does not intent to enter in any such contracts in the future. At present, ADVA Optical Networking reviews the potential impact of the application of IFRS 16 on its consolidated financial statements. The standard will be adopted for financial years starting January 1, 2019 and will apply the modified retrospective approach.

Besides the described standards, the adoption of new or revised standards and interpretations – from today's perspective – will not have a material impact on the financial position and performance of the group. The group does not plan an early adoption of these standards.

(4) Recognition and measurement

Inventories
Inventories are valued at the lower of cost or net realizable value. The cost of purchase is determined by the average method. Production costs include direct unit costs, an appropriate portion of necessary manufacturing overheads and production-related depreciation that can be directly assigned to the production process. Administrative and social insurance charges that can be assigned to production are also taken into account. Financing charges are not classified as part of the at-cost base. The net realizable value is the estimated selling price that could be realized on the closing date in the context of ordinary business activity, less estimated costs of completion and costs necessary to make the sale.

Inventory depreciation covers risks relating to slow-moving items or technical obsolescence. Where the reasons for previous write-downs no longer apply, these write-downs are reversed.

Property, plant and equipment
Property, plant and equipment is stated at historic cost less accumulated depreciation and accumulated impairment losses, if any. The present value of the expected cost for the decommissioning of the asset after its use is included in the cost of the respective asset if the recognition criteria for a provision are met.

Subsequent costs are included in the asset's carrying amount or recognized as separate asset only when it is probable that future economic benefits associated with this item will flow to the group and the cost can be measured reliably. All other repairs and maintenance are charged to the income statement during the financial period in which they are incurred.

Depreciation on property, plant and equipment is calculated on a straight-line basis over the estimated useful economic lives of the assets as follows:

• Buildings	20 to 25 years
• Technical equipment and machinery	3 to 4 years
• Factory and office equipment	3 to 10 years

No regular depreciation applies for land and similar rights.

Leasehold improvements and other subsidies received under new or renewed operating lease contracts are accounted for according to SIC 15 (Operating leases – incentives). The benefit is recognized as a reduction of the rental expense over the contractual lease term. Leasehold improvements are capitalized as tangible assets and depreciated over the term of the lease on a straight-line basis.

An item of property, plant and equipment is derecognized upon disposal or when no future economic benefits are expected from its use or disposal. Any gain or loss arising on derecognition of the asset (calculated as the difference between the net disposal proceeds and the carrying amount of the asset) is included in the income statement when the asset is derecognized.

The assets' residual values, useful economic lives and methods of depreciation are reviewed at each financial year-end and adjusted prospectively, if appropriate.

Intangible assets
Intangible assets acquired separately are measured on initial recognition at cost. The cost of intangible assets acquired in a business combination is their fair value on the date of acquisition. Following initial recognition, intangible assets are carried at cost less any accumulated amortization and any accumulated impairment losses. Internally generated intangible assets, excluding capitalized development costs, are not capitalized, and expenditure is reflected in profit or loss in the year in which the expenditure is incurred.

The useful economic lives of intangible assets are assessed to be either finite or indefinite.

Intangible assets with finite lives are amortized on a straight-line basis over the expected useful economic lives of the assets as follows:

- Capitalized development projects 3 to 5 years
- Intangible assets acquired in business combinations 4 to 9 years
- Software and other intangible assets 3 to 6 years

Intangible assets with finite useful economic lives are assessed for impairment whenever there is an indication that the intangible asset may be impaired. The amortization period and the amortization method for an intangible asset with a finite useful life is reviewed at each financial year-end. The amortization expense on intangible assets with finite lives is recognized in profit or loss in the expense category consistent with the function of the intangible asset.

Intangible assets with an indefinite useful life are not amortized. An impairment loss is recognized for the amount by which the asset's carrying amount exceeds its recoverable amount. The recoverable amount is the higher of an asset's fair value less costs of disposal and value in use. The useful life of an intangible asset with an indefinite life is reviewed at least annually to determine whether the indefinite life assessment continues to be applicable. If not, the change in the useful life assessment from indefinite to finite is made on a prospective basis. There are no intangible assets with indefinite lives other than goodwill and development projects in progress.

Gains or losses arising from derecognition of an intangible asset are measured as the difference between the fair value less costs to sell and the carrying amount of the asset, and they are recognized in the income statement when the asset is derecognized.

Goodwill
An unlimited useful life is assumed for goodwill acquired in the context of business combinations. Impairment reviews are performed at the cash generating unit level on the balance sheet date or when there is an indication that the goodwill may be impaired in accordance with IAS 36. Impairment losses on goodwill recognized in prior periods are not reversed. See note (12).

Intangible assets acquired in business combinations
Intangible assets acquired in business combinations have a finite useful life. They are recognized at cost and amortized on a straight-line basis over estimated useful economic lives of five to nine years. They are tested for impairment if an indication exists that the recoverable amount of the asset may have decreased.

Capitalized development projects

Development expenses for new products are capitalized as development projects if

- they can be unambiguously assigned to these products,
- the products under development are technically feasible and can be marketed,
- there is reasonable certainty that the development activity will result in future cash inflows,
- ADVA Optical Networking intends and is able to complete and use the development project and
- there is the availability of adequate technical, financial and other resources to complete the development and to use or sell the intangible asset.

Capitalized development projects include all costs that can be directly assigned to the development process. Financing charges are capitalized if the development project represents a qualifying asset in the sense of IAS 23.

After initial recognition of a development project as an asset, measurement is at historical cost, less accumulated amortization and impairment. The straight-line method of amortization is used from the start of production through the estimated selling periods for the products developed (generally between three and five years). Completed as well as ongoing development projects are tested for impairment on the balance sheet date or when there is an indication of potential impairment. Impairment losses are recognized if appropriate.

Research costs are expensed as incurred according to IAS 38.

Impairment of non-financial assets

Intangible assets with indefinite useful economic lives are tested for impairment annually and whenever there is an indication for potential impairment, either individually or at the cash generating unit level.

Intangible assets with finite useful economic lives are tested for impairment if an indication exists that the assets may have been impaired. An impairment loss is recognized for the amount by which the asset's carrying amount exceeds its recoverable amount. The recoverable amount is the higher of an asset's fair value less costs of disposal and value in use. Prior impairments of non-financial assets (other than goodwill) are reviewed for possible reversal at each reporting date.

Government grants

Government grants are recognized where there is reasonable assurance that the grant will be received and all attached conditions will be met. When the grant relates to an expense item, it is recognized as income over the period necessary to match the grant on a systematic basis to the costs that it is intended to compensate. Where the grant relates to an asset, it is recognized as a reduction of purchase costs and released as a reduction of depreciation expense over the expected useful life of the related asset.

Borrowing costs

Borrowing costs directly attributable to the acquisition, construction or production of an asset that necessarily takes a substantial period to get ready for its intended use or sale (qualifying asset) are capitalized as part of the cost of the respective assets. If borrowing costs cannot be directly attributed to the acquisition, construction or production of an asset, an assessment is made on whether general borrowing costs should be recognized that would have been avoided if the asset was not acquired, constructed or produced. All other borrowing costs are expensed in the period they occur. Borrowing costs consist of interest and other costs that an entity incurs in connection with the borrowing of funds.

Leasing
Leasing contracts are classified as finance leases if substantially all risks and rewards, and with it the economic ownership, are transferred to the lessee. All other leasing transactions are classified as operating leases.

Property, plant and equipment acquired by ADVA Optical Networking through finance lease contracts is stated at the fair value of the leased property or, if lower, the present value of the future minimum lease payments when the contract commences. Finance lease contracts are then amortized using the straight-line method over the shorter of the leasing period or the estimated useful life of the assets. The correspondent liability is shown as finance lease obligation. The lease payment to the lessor is apportioned between finance charge and the reduction of the outstanding liability. The finance charge is allocated to each period during the lease term to produce a constant periodic rate of interest on the remaining liability.

Operating lease payments are recognized as an expense in the income statement on a straight-line basis over the lease term.

Employee benefits
ADVA Optical Networking maintains defined benefit plans in three countries based on the pensionable compensation of its employees and their length of service. Some of these pension plans are financed through external pension funds. Provisions for pensions are actuarially measured using the projected unit credit method for defined benefit pension plans, taking into account not only the pension obligations and vested pension rights known at the reporting date, but also expected future salary and benefit increases. The interest rate used to determine the present value of the obligations is generally set based on the yields on high-quality corporate bonds or government bonds in the respective currency area. The return on existing plan assets and expenses for interest added to obligations are reported in finance costs. Service cost is classified as operating expenses. Past service cost not recognized due to a change in the pension plan shall immediately be recognized in the period in which the change took effect. Gains and losses arising from adjustments and changes in actuarial assumptions are recognized immediately and in full in the period in which they occur within other comprehensive income. Further details on recognition and measurement of employee benefits is included in note (15).

In addition, ADVA Optical Networking grants defined contribution plans to employees of some group entities in accordance with statutory or contractual requirements. The payments are made to state or private pension insurance funds. Under defined contribution plans, the employer does not assume any other obligations beyond the payment of contributions to an external fund. The amount of the future pension payments will exclusively depend on the contribution made by the employer (and their employees, if applicable) to the external fund, including income from the investment of such contributions. The amounts payable are expensed when the obligation to pay the amounts is established, and classified as operating expenses.

Share-based compensation transactions
Employees (including senior executives) of ADVA Optical Networking receive remuneration in the form of share-based compensation transactions, whereby employees render services as consideration for equity instruments (equity-settled transactions) or they are granted stock appreciation rights, which are settled in cash (cash-settled transactions). Share-based compensation transactions are reported and valued in accordance with IFRS 2.

Share-based compensation transactions between different entities of ADVA Optical Networking are considered as either equity-settled or cash-settled share-based compensation transactions in the individual financial statements of ADVA Optical Networking SE. The group entities employing the beneficiaries measure the received services as an equity-settled share-based compensation transaction. No repayment arrangements have been set up between the entities of ADVA group.

Equity-settled transactions
The cost of equity-settled transactions with employees is measured by reference to the fair value on the grant date. The fair value is determined by an external expert using an appropriate pricing model. See note (34) for further details.

The cost of equity-settled transactions is recognized, together with the corresponding increase in equity, straight-line over the period in which the relevant employees become fully entitled to the award (vesting date). Vesting date ends with the first exercise possibility. From that day, the employee is entitled to benefit. No expense is recognized for awards that do not ultimately vest, except for awards where vesting is conditional upon market condition, which are treated as vesting irrespective of whether or not market condition is satisfied, if all other performance conditions are satisfied.

Where the terms of an equity-settled transaction award are modified, the minimum expense recognized is the expense as if the terms had not been modified, if the original terms of the award are met. An additional expense is recognized for any modification that increases the total fair value of the share-based compensation transaction, or is otherwise beneficial to the employee as measured on the date of modification.

Where an equity-settled award is cancelled, it is treated as if it vested on the date of cancellation, and any expense not yet recognized for the award is recognized immediately. This includes any award where non-vesting conditions within the control of either the entity or the employee are not met. However, if a new award is substituted for the cancelled award, and designated as a replacement award on the date that it is granted, the cancelled and new awards are treated as if they were a modification of the original award, as described in the previous paragraph. All cancellations of equity-settled transactions are treated equally.

The dilutive effect of outstanding options is reflected in the computation of earnings per share. See note (26).

Cash-Settled Transactions
The cost of cash-settled transactions is measured initially at fair value on the grant date. The fair value is expensed straight-line over the vesting period with recognition of a corresponding provision. The provision is re-measured on each balance sheet date up to and including the settlement date, with changes in the fair value recognized in profit or loss.

Provisions
Provisions are recognized when the group has a present obligation (legal or constructive) as a result of a past event, when it is probable that an outflow of resources embodying economic benefits will be required to settle the obligation and a reliable estimate can be made of the amount of the obligation. The amount recognized as a provision represents the best estimate of the expenditure required to settle the present obligation.

Where the group expects some or all of a provision to be reimbursed, for example under an insurance contract, the reimbursement is recognized as a separate asset but only when the reimbursement is virtually certain. The expense relating to any provision is presented in profit or loss, net of any reimbursement. If the effect of the time value of money is material, provisions are discounted using a current pre-tax rate that reflects, where appropriate, the risks specific to the liability. Where discounting is used, the increase in the provision over time is recognized in other financial gains and losses, net.

Common stock
Common stock is disclosed in stockholder's equity.

Incremental costs directly attributable to the issuance of new ordinary shares or options are shown in equity as a deduction, net of tax, from the proceeds.

Where any group company purchases the company's equity share capital (treasury shares), the consideration paid, including any directly attributable incremental costs, is deducted from equity until the shares are cancelled or reissued. Where such shares are subsequently reissued, any consideration received, net of any directly attributable incremental transaction costs, is included in equity.

Financial instruments

Financial assets
Financial assets within the scope of IAS 39 are either classified as financial assets at fair value, affecting the income statement, loans and receivables, investments held to maturity, financial assets available for sale or as derivatives designated as hedging instruments in an effective hedge, as appropriate. The group determines the classification of its financial assets at initial recognition.

Cash and cash equivalents as reported in the consolidated cash flow statement include short-term liquidity, i.e. cash and cash equivalents and short-term investments and securities with an initial time to maturity not exceeding three months. Bank overdrafts are disclosed in financial liabilities.

All regular purchases and sales of financial assets are recognized on the trade date, i.e., the date ADVA Optical Networking committed to purchase the asset. Investments recognized at fair value are initially recognized at fair value plus transaction costs for all financial assets not carried at fair value through profit or loss. Financial assets carried at fair value through profit or loss are initially recognized at fair value, and transaction costs are expensed in the income statement.

The group's financial assets include cash and short-term deposits, trade and other receivables, investments and derivative financial instruments.

Subsequent measurement
The subsequent measurement of financial assets depends on their classification as follows:

Financial assets at fair value through profit or loss
Financial assets at fair value through profit or loss include financial assets designated upon initial recognition at fair value through profit or loss. This category includes derivative financial instruments entered into by the group that are not designated as hedging instruments in hedge relationships as defined by IAS 39. Derivatives, including separated embedded derivatives, are also classified as held for trading unless they are designated as effective hedging instruments. Financial assets at fair value through profit or loss are carried in the statement of financial position at fair value with changes in fair value recognized in other financial gains and losses, net, in the income statement.

For its financial assets at fair value through profit or loss, ADVA Optical Networking evaluates whether the intention to sell them in the near-term is still appropriate or not. When the group is unable to trade these financial assets due to inactive markets and management intends to sell them in the near future significantly changes, in rare circumstances the group may elect to reclassify these financial assets. The reclassification to loans and receivables, available-for-sale or held to maturity depends on the nature of the asset. This reclassification does not affect the evaluation of financial assets designated at fair value through profit or loss using the fair value option at designation.

Loans and receivables
Loans and receivables are non-derivative financial assets with fixed or determinable payments that are not quoted in an active market. After initial measurement, loans and receivables are subsequently carried at amortized cost using the effective interest rate method less allowances for impairment. Amortized cost is calculated considering any discount or premium at the time of the purchase. The amortized cost includes any fees that are an integral part of the effective interest rate and of the transaction costs. Gains and losses are recognized in the income statement at the time the loans and receivables are written off or impaired.

Held-to-maturity investments

Non-derivative financial assets with fixed or determinable payments and fixed maturities are classified as held-to-maturity when the group has the positive intention and ability to hold them to maturity. After initial measurement, held-to-maturity investments are measured at amortized cost using the effective interest method, less impairment. Amortized cost is calculated by taking into account any discount or premium on acquisition and fees or costs that are an integral part of the effective interest rate. The effective interest rate amortization and losses arising from impairment are recognized in the income statement in other financial gains and losses, net.

Available-for-sale assets
The category available-for-sales assets includes all non-derivative financial assets that are not classified as "loans and receivables" or "held-to-maturity investments" or as items measured "at fair value through profit or loss".

Derecognition
ADVA Optical Networking derecognizes a financial asset (or, where applicable, a part of a financial asset or part of a group of similar financial assets) when:

- The rights to receive cash flows from the asset have expired.
- The group has transferred its rights to receive cash flows from the asset or has assumed an obligation to pay the received cash flows in full without material delay to a third party under a "pass-through" arrangement; and either (a) the group has transferred substantially all the risks and rewards of the asset, or (b) the group has neither transferred nor retained substantially all the risks and rewards of the asset, but has transferred control of the asset.

When the group has transferred its rights to receive cash flows from an asset or has entered into a "pass-through" arrangement, and has neither transferred nor retained substantially all the risks and rewards of the asset nor transferred control of the asset, the asset is recognized to the extent of the group's continuing involvement in the asset. In that case, the group also recognizes an associated liability. The transferred asset and the associated liability are measured on a basis that reflects the rights and obligations that the group has retained. Continuing involvement that takes the form of a guarantee over the transferred asset is measured at the lower of the original carrying amount of the asset and the maximum amount of consideration that the group could be required to repay.

Impairment of financial assets
On each balance sheet date, ADVA Optical Networking assesses whether a financial asset is impaired. If there is objective evidence that an impairment loss on loans and receivables has been incurred, the amount of the loss is determined as the difference between the carrying amount of the financial asset and the present value of expected future cash flows. Impairment losses are recognized in the income statement. No financial assets were impaired in 2017 und 2016, respectively.

If the amount of the impairment loss decreases in subsequent periods, and if the decrease relates to an event that had occurred after the impairment was recognized, the previously recognized impairment loss is reversed. The loss can only be reversed to the extent that the carrying value of the asset does not exceed its amortized cost on the date of impairment. Any subsequent reversal of an impairment loss affects the income statement.

For trade accounts receivable, a provision for impairment is made, if there is objective evidence that ADVA Optical Networking will not be able to collect the full amount due under the original terms of the invoice. The carrying amount of the receivable is reduced through use of an allowance account. Impaired trade receivables are derecognized when they are assessed as uncollectible.

Financial liabilities
Initial recognition and measurement
Financial liabilities within the scope of IAS 39 are classified as financial liabilities at fair value through profit or loss, loans and borrowings, or as derivatives designated as hedging instruments in an effective hedge, as appropriate. The group determines the classification of its financial liabilities at initial recognition. All financial liabilities are recognized initially at fair value. Loans and borrowings are recognized net of directly attributable transaction costs.

ADVA Optical Networking's financial liabilities include trade and other payables, bank overdrafts, loans and borrowings and derivative financial instruments.

Subsequent measurement
The measurement of financial liabilities depends on their classification as follows:

Financial liabilities at fair value through profit or loss

Financial liabilities at fair value through profit or loss include financial liabilities designated as at fair value through profit or loss upon initial recognition. Financial liabilities are classified as held for trading if they are acquired for selling in the near-term. This category includes derivative financial instruments entered into by the group that are not designated as hedging instruments in hedge relationships as defined by IAS 39. Separated embedded derivatives are also classified as held for trading unless they are designated as effective hedging instruments. Gains or losses on liabilities held for trading are recognized in the income statement. ADVA Optical Networking has not designated any financial liabilities upon initial recognition as at fair value through profit or loss.

Loans and borrowings
After initial recognition, interest-bearing loans and borrowings are subsequently measured at amortized cost using the effective interest rate

method. Gains and losses are recognized in the income statement when the liabilities are derecognized as well as through the effective interest rate method (EIR) amortization process. Amortized cost is calculated by taking into account any discount or premium on acquisition and fees or costs that are an integral part of the EIR. The EIR amortization is included in interest expenses in the income statement.

Derecognition

A financial liability is derecognized when the obligation under the liability is discharged, cancelled or expires. When an existing financial liability is replaced by another from the same lender on substantially different terms, or the terms of an existing liability are substantially modified, such an exchange or modification is treated as a derecognition of the original liability and the recognition of a new liability. The difference in the respective carrying amounts is recognized in the income statement.

Derivative financial instruments and hedging activities

The group entered into forward rate agreements to hedge foreign currency exposure of expected future cash flows. These derivatives are initially recognized at fair value on the date a derivative contract is entered into and are subsequently re-measured at their fair value through profit or loss.

The group did not apply hedge accounting rules according to IAS 39 during the years ended December 31, 2017 and 2016.

Revenue recognition

Revenue is recognized to the extent that it is probable that the economic benefits will flow to the group and the revenue can be reliably measured. Revenue is measured at the fair value of the consideration received or receivable, net of discounts, rebates and other sales taxes or duty. The following specific recognition criteria must also be met before revenue is recognized:

Sale of goods

Revenue from the sale of goods is recognized when the significant risks and rewards of ownership of the goods have passed to the buyer, usually on delivery of the goods.

Product returns that are estimated according to contractual obligations and past revenues statistics are recognized as a reduction of revenues.

Rendering of services

Revenues arising from the sale of services primarily derive from training, maintenance and installation services and are recognized when these services have been rendered. Installation services are recognized as revenue if the customer has approved the final installation. Generally, maintenance services are reported as deferred revenue and recognized as revenue straight-line over the contract period. Training is recognized as revenue immediately after rendering of the service.

In arrangements with a customer that include delivery of goods as well as rendering of services, the shipment of the goods is separated from the rendering of the services if the goods have a stand-alone value for the customer and the fair value of the service can be reliably determined. Both components of the transaction are measured at their respective fair value.

Cost of goods sold

The cost of goods sold comprises the costs incurred in the production and rendering of services. This item subsumes both the direct cost of materials and production directly assignable to a product and indirect (overhead) costs, including the depreciation of production equipment, amortization of production related intangible assets and write-downs on inventories. The cost of goods sold also includes appropriation to the warranty provision. Income from the reversal of write-downs on inventories reduces the cost of goods sold, which also includes amortization of purchased technologies.

Interest income and expenses

For all financial instruments measured at amortized cost and interest-bearing financial assets classified as available-for-sale, interest income or expenses are recorded using the effective interest rate, which is the rate that exactly discounts the estimated future cash payments or receipts through the expected life of the financial instrument or a shorter period, where appropriate, to the net carrying amount of the financial asset or liability.

Taxes

Current income tax

Current income tax assets and liabilities for the current and prior periods are measured at the amount expected to be recovered from or paid to the taxation authorities. The tax rates and tax laws used to compute the amount are these that are enacted or substantively enacted on the respective balance sheet date.

Deferred income tax

Deferred tax is provided using the liability method on temporary differences at the balance sheet date between the tax bases of assets and liabilities and their carrying amounts for financial reporting purposes.

Deferred tax liabilities are recognized for all taxable temporary differences, except:

- where the deferred income tax liability arises from the initial recognition of goodwill or of an asset or liability in a transaction that is not a business combination and, at the time of the transaction, affects neither the accounting profit nor taxable profit or loss; and
- in respect to taxable temporary differences associated with investments in subsidiaries, where the timing of the reversal of the temporary differences can be controlled and it is probable that the temporary differences will not reverse in the near future.

Deferred tax assets are recognized for all deductible temporary differences, carry forward of unused tax credits and unused tax losses, to the extent that it is probable that taxable profit will be available against which the deductible temporary differences, and the carry forward of unused tax credits and unused tax losses can be utilized, except:

- where the deferred tax asset relating to the deductible temporary difference arises from the initial recognition of an asset or liability in a transaction that is not a business combination and, at the time of the transaction, affects neither the accounting profit nor taxable profit or loss; and
- in respect of deductible temporary differences associated with investments in subsidiaries, deferred tax assets are recognized only to the extent that it is probable that the temporary differences will reverse in the foreseeable future and taxable profit will be available against which the temporary differences can be utilized.

The carrying amount of deferred tax assets is reviewed on each balance sheet date and reduced to the extent that it is no longer probable that sufficient taxable profit will be available to allow all or part of the deferred tax asset to be utilized. Unrecognized deferred tax assets are reassessed on each balance sheet date and are recognized to the extent that it has become probable that future taxable profit will allow the deferred tax asset to be utilized.

Deferred tax assets and liabilities are measured at the tax rates that are expected to apply to the year when the asset is realized or the liability is settled, based on tax rates (and tax laws) that have been enacted or substantively enacted on the balance sheet date. Future changes in tax rates are recognized on the balance sheet date if their impact is materially certain as part of the tax legislation process.

According to IAS 12.74 deferred tax assets and liabilities have been set off in 2017 for the first time insofar as offsetting qualifications apply. Accordingly, prior year disclosure has been adjusted.

Earnings per share

The group calculates basic and diluted earnings per share in accordance with IAS 33. Basic earnings per share are calculated based on the weighted average number of no-par value shares outstanding during the reporting period. Diluted earnings per share are calculated based on the weighted average number of no-par value shares outstanding during the reporting period, but also including the number of no-par value shares that could come into existence if all stock options were exercised on the balance sheet date.

(5) Significant accounting judgments, estimates and assumptions

The preparation of the group's financial statements requires management to make judgments, estimates and assumptions that affect the reported amounts of revenues, expenses, assets and liabilities and the disclosure of contingent liabilities on the reporting date. However, uncertainty about these assumptions and estimates could result in outcomes that could require a material adjustment to the carrying amount of the asset or liability affected in the future. Assumptions used to make estimates are regularly reviewed. Changes in estimates only affecting one accounting period are only taken into account in that accounting period. In the case of changes in estimates that affect the current and future accounting periods, these are taken into account appropriately in the current and subsequent accounting periods.

Discussed below are the key judgments and assumptions concerning the future and other key sources of estimation and uncertainty on the balance sheet date that have a significant risk of causing a material adjustment to the carrying amounts of assets and liabilities within the next financial year.

Development expenses
Development expenses are capitalized in accordance with the accounting policy described in note (4). Initial capitalization of costs is based on management's judgment that technological and economic feasibility is confirmed, usually when a product development project has reached a defined milestone according to an established project management model. In determining the amounts to be capitalized, management makes assumptions regarding the expected future cash generation of the assets, discount rates to be applied and the expected period of benefits. See note (12) for the carrying amounts involved.

Impairment of non-financial assets
The group assesses whether there are any indicators of impairment for all non-financial assets on each reporting date. Goodwill and other indefinite life intangibles are tested for impairment annually and at other times when such indicators exist. Other non-financial assets are tested for impairment when there are indicators that the carrying amounts may not be recoverable. When value-in-use calculations are undertaken, management must estimate the expected future cash flows from the asset or cash generating unit and choose a suitable discount rate in order to calculate the present value of these cash flows. See note (12) for the carrying amounts involved.

Pension obligations
Pension and similar post-employment obligations as well as the related expenses are recognized based on actuarial calculations. The actuarial valuation of the present value of pension obligations depends on a number of assumptions regarding the discount rate, the expected salary increase rate, the expected pension trend, and life expectancy. In the event that changes in the assumptions regarding the valuation parameters are required, the future amounts of the pension obligations as well as the pension benefit costs may be affected materially. For further details on the valuation of pension obligations, see note (15).

Share-based compensation transactions
The group measures the cost of equity-settled and cash-settled transactions with employees by reference to the fair value of the equity instruments on the date at which they are granted or on the balance sheet date. Estimating fair value requires determining the most appropriate valuation model for a grant of equity instruments, which is dependent on the terms and conditions of the grant. This also requires determining the expected life of the option, volatility and dividend yield, as well as further assumptions. See note (34) for the carrying amounts involved.

Provisions
Significant estimates are involved in the determination of provisions related to warranty costs and legal proceedings. The estimate of warranty claims is based on historic data and is extrapolated into the future. Legal proceedings often involve complex legal issues and are subject to substantial uncertainties. Accordingly, management exercises considerable judgment in determining whether there is a present obligation as a result of a past event at the end of the reporting period, whether it is more likely than not that such a proceeding will result in an outflow of resources and whether the amount of the obligation can be reliably estimated. Other provisions are described in note (16).

Taxes
Uncertainties exist with respect to the interpretation of complex tax regulations and the amount and timing of future taxable income. Given the wide range of international business relationships and the long-term nature and complexity of existing contractual agreements, differences

arising between the actual results and the assumptions made, or future changes to such assumptions, could necessitate future adjustments to tax income and expenses already recorded. The group establishes provisions, based on reasonable estimates, for possible consequences of audits by the tax authorities of the respective countries in which it operates. The amount of such provisions is based on various factors, such as experience of previous tax audits and differing interpretations of tax regulations by the taxable entity and the responsible tax authority. Such differences of interpretation may arise on a wide variety of issues depending on the conditions prevailing in the respective group company's domicile.

Deferred tax assets are recognized for all unused tax losses to the extent that it is probable that taxable profit will be available to utilize these losses. Significant management judgment is required to determine the amount of deferred tax assets that can be recognized, based upon the likely timing and level of future taxable profits together with future tax planning strategies. See note (22) for the carrying amounts involved.

(6) Principles of consolidation, scope of consolidation and shareholdings

Subsidiaries are all entities over which ADVA Optical Networking SE directly or indirectly has control. Subsidiaries are fully consolidated from the date on which control is transferred to the group. ADVA Optical Networking SE controls an entity when it is exposed to or has the rights to variable returns from its involvement and has the ability to affect those returns through its power to direct the activities of the entity.

Intercompany revenues, expenses, income, receivables and payables within the group are netted.

Intercompany profits that arise from deliveries of products and services provided within the group are eliminated.

Business combinations

Business combinations from January 1, 2010 are accounted for using the acquisition method. The cost of an acquisition is measured as the aggregate of the consideration transferred, measured at acquisition date fair value and the amount of any non-controlling interest in the acquiree. For each business combination, the acquirer measures the non-controlling interest in the acquiree either at fair value or at the proportionate share of the acquiree's identifiable net assets. Acquisition costs incurred are expensed.

When a group company acquires a business, it assesses the financial assets and liabilities acquired for appropriate classification and designation in accordance with the contractual terms, economic circumstances and relevant conditions on the acquisition date. This includes the separation of embedded derivatives in host contracts by the acquiree.

If the business combination is achieved in stages, the acquisition date fair value of the acquirer's previously held equity interest in the acquiree is re-measured to fair value on the acquisition date through profit and loss.

Any contingent consideration to be transferred by the acquirer will be recognized at fair value on the acquisition date. Subsequent changes to the fair value of the contingent consideration that is deemed an asset or liability will be recognized in accordance with IAS 39 either in profit or loss or as a change to other comprehensive income. If the contingent consideration is classified as equity, it shall not be re-measured until it is finally settled within equity.

Goodwill is initially measured at cost being the excess of the consideration transferred over the group's net identifiable assets acquired and liabilities assumed. If this consideration is lower than the fair value of the net assets of the company acquired, the difference is recognized in profit or loss after reassessment.

After initial recognition, goodwill is measured at cost less any accumulated impairment losses. For the purpose of impairment testing, goodwill acquired in a business combination is, from the acquisition date, allocated to each of the group's cash generating units that are expected to benefit from the combination, irrespective of whether other assets or liabilities of the acquiree are assigned to those units.

Where goodwill forms part of a cash-generating unit and where part of the operation within that unit is disposed of, the goodwill associated with the operation disposed of is included in the carrying amount of the operation when determining the gain or loss on disposal of the operation. Goodwill disposed of in this circumstance is measured based on the relative values of the operation disposed of and the portion of the cash-generating unit retained.

Investments in associates and in joint ventures
The equity method according to IAS 28 (Investments in Associates) is used to account for investments in entities in which ADVA Optical Networking SE holds 20% to 50% of the voting rights, either directly or indirectly, and over whose operating and financial policy decisions ADVA Optical Networking SE exercises significant influence (associated companies). The investment is initially recognized at cost, and the carrying amount is increased or decreased to recognize the investor's share of the profit or loss generated. The group share of the profit or loss of investments accounted for by the equity method is recognized in the consolidated income statement, whereas the share of changes in the equity of investments accounted for by the equity method that has not been recognized in profit or loss is shown in the reserves of the consolidated equity. In case the group share of losses exceeds the carrying amount of the investment accounted for by the equity method, no further losses are recognized at group level. Goodwill relating to an investment accounted for by the equity method is included in the carrying amount of the investment. Upon loss of significant influence over an associate, the group measures and recognizes any retaining investment at its fair value. Upon loss of significant influence, any difference between the carrying amount of the associate and the fair value of the retaining investment and proceeds from disposal are recognized in profit or loss.

Scope of consolidation

The consolidated financial statements for the year ended December 31, 2017, include the financial statements of ADVA Optical Networking SE plus all of the 27 (16 on December 31, 2016) wholly-owned subsidiaries listed below (hereafter collectively referred to as “the group companies”:

(in thousands)			Equity	Net income/(loss	Share in equity owned directly	Share in equity owned indirectly
ADVA Optical Networking North America, Inc., Norcross/Atlanta (Georgia), USA (ADVA Optical Networking North America)	USD	•	67,996	7,786	–	100%
ADVA Optical Networking Ltd., York, United Kingdom (ADVA Optical Networking York)	GBP	••	12,365	79	100%	–
Oscilloquartz SA, Saint-Blaise, Switzerland (OSA Switzerland)	CHF	•	7,925	279	100%	–
ADVA Optical Networking sp. z o.o., Gdynia, Poland (ADVA Optical Networking Polen)	PLN	••	24,845	19,637	100%	–
ADVA Optical Networking Israel Ltd.,Ra’anana/Tel Aviv, Israel (ADVA Optical Networking Israel)	ILS	•	-13,734	-3,738	100%	–
ADVA Optical Networking (Shenzhen) Ltd., Shenzhen, China (ADVA Optical Networking Shenzhen)	CNY	••	49,887	4,506	100%	–
Oscilloquartz Finland Oy, Espoo, Finland (OSA Finnland)	EUR	•	43	34	100%	–
ADVA IT Solutions Pvt. Ltd., Bangalore, India (ADVA IT Solutions)	INR	•	66,973	-12,476	–	100%
ADVA Optical Networking Trading (Shenzhen) Ltd., Shenzhen, China (ADVA Optical Networking Trading)	USD	••	952	154	–	100%
ADVA Optical NetworkingSingapore Pte. Ltd., Singapore (ADVA Optical Networking Singapore)	SGD	••	3,213	182	100%	–
ADVA Optical Networking Hong Kong Ltd., Hong Kong, China (ADVA Optical Networking Hong Kong)	HKD	••	3,738	1,721	–	100%
ADVA Optical Networking (India) Private Ltd.,Gurgaon, India (ADVA Optical Networking Indien)	INR	•	60,645	38,587	1%	99%
ADVA Optical Networking Serviços Brazil Ltda., São Paulo, Brazil (ADVA Optical Networking São Paulo)	BRL	•	1,432	229	99%	1%
ADVA Optical Networking Corp., Tokio, Japan (ADVA Optical Networking Tokio)	JPY	•	83,118	1,164	100%	–
ADVA Optical Networking AB, Kista/Stockholm, Sweden (ADVA Optical Networking Stockholm)	SEK	•	1,728	191	100%	–
ADVA NA Holdings Inc., Atlanta (Georgia), USA (ADVA NA Holdings)	USD	•	60,621	-66	100%	–

(in thousands)			Equity	Net income/(loss	Share in equity owned directly	Share in equity owned indirectly
MRV Communications Inc., Chatsworth (California), USA (MRV Inc.)	USD	•	-1,168	-1,168	–	100%
MRV Communications Americas Inc., Chelmsford (Massachusetts), USA (MRV US)	USD	•	18,336	-3,220	–	100%
ADVA Optical Networking Pty, Ltd., Sydney (New South Wales), Australia (formerly MRV Communications Pty, Ltd.) (ADVA Australia)	AUD	•	1,359	203	–	100%
MRV Communications GmbH, Darmstadt, Germany (MRV Germany)	EUR	•	-5,462	110	–	100%
MRV Communications Ltd., Yokneam, Israel (MRV Israel)	USD	•	-34,365	-1,834	–	100%
MRV International Ltd., Yokneam, Israel (MRV International)	USD	•	-6,503	121	–	100%
ADVA Optical Networking B.V., LA Etten-Leur, Netherlands (formerly MRV Communications B.V.) (ADVA Netherlands)	EUR	•	225	31	–	100%
Charlotte's Web Ltd., Israel	USD	•	-53,183	–	–	100%
NBase Communications Ltd., Israel	USD	•	16,921	3	–	100%
Jolt Ltd., Israel	USD	•	-6,129	2	–	100%
NBase Fibronics Ltd., Israel	USD	•	-3,824	–	–	100%

* Prepared in accordance with the International Financial Reporting Standards (IFRS) for the financial year ended December 31, 2017.
** Prepared in accordance with local commercial law for the financial year ended December 31, 2016.

Changes in the scope of consolidation

Acquisition of MRV Communications Inc.

On August 12, 2017 ADVA NA Holding Inc., Atlanta (Georgia), USA, acquired 100% of the shares of MRV Communications Inc., Chatsworth (California), USA, for a preliminary cash consideration due at the same date of USD 66,964 thousand (EUR 56,918 thousand, translated at the relevant foreign currency exchange rate at the date of payment). Furthermore, additional expenses of the acquisition amounting to EUR 1,165 thousand have been recognized in the income statement immediately.

At the date of the acquisition, the MRV Inc. together with its six active 100% subsidiaries MRV Communications Americas Inc., Chelmsford (Massachusetts), USA (MRV US), MRV Communications Pty, Ltd. (renamed to ADVA Optical Networking Pty, Ltd.), Sydney (New South Wales), Australia (ADVA Australia), MRV Communications Ltd., Yokneam, Israel (MRV Israel), MRV International Ltd, Yokneam, Israel (MRV International), MRV Communications GmbH, Darmstadt, Germany (MRV Germany) and MRV Communications B.V. (renamed to ADVA Optical Networking B.V.), LA Etten-Leur, Netherlands (ADVA Netherlands) employed a total number of 211 employees. Furthermore at that date, four non-active subsidiaries or subsidiaries already in liquidation existed. Like ADVA Optical Networking, the MRV Communications group has many years of expertise in optical transmission technology and carrier Ethernet access solutions. In the 29 years of its existence MRV has advanced important innovations in these areas and achieved considerable customer success. The acquisition will expand ADVA Optical Networking's customer base and further strengthen the company's competency in key areas.

The preliminary purchase price allocation according to IFRS 3 performed on August 12, 2017, included in the consolidated annual report as of December 31, 2017 incorporates the cash consideration as already paid as well as preliminary opening balances of assets and liabilities of MRV Communications group according to IFRS. During the course of the consolidation, purchased technologies and acquired customer relationships were recognized. Moreover, fair value adjustments regarding inventories, property, plant and equipment, deferred tax liabilities as well as deferred revenues have been considered. The remaining preliminary excess purchase price is classified as goodwill and represents the fair value of anticipated synergies from the acquisition as well as the assembled workforce of the MRV Communications group.

The expected remaining useful lives of the acquired intangible assets are as follows:

Technology	6 years
Acquired customer relationships	11 years.

The preliminary fair values of acquired assets and liabilities at the date of the acquisition and carrying amounts immediately prior to the date of the acquisition comprise as follows:

(in thousands of EUR)	Carrying amount	Fair value at the date of the acquisition
Cash and cash equivalents	20,705	20,705
Trade accounts receivable	11,029	11,029
Inventory	4,649	6,754
Property, plant and equipment and other intangible assets	3,597	3,968
Purchased technologies	–	8,959
Acquired customer relationships	–	12,699
Other current and non-current assets	1,258	1,258
Trade accounts payable	-4,808	-4,808
Provisions and other current and non-current liabilities	-24,271	-24,271
Deferred revenues	–	-1,385
Deferred tax liabilities	–	-8,352
Preliminary net assets	**12,159**	**26,556**
Preliminary goodwill		**30,362**
Preliminary purchase price		**56,918**

The preliminary net cash outflow from the acquisition is comprised as follows:

in thousands of EUR)	
Cash and cash equivalents acquired from MRV group	20,705
Cash paid in acquisition	-56,918
Preliminary cash outflow from the acquisition	**-36,213**

In 2017 from the date of the acquisition, the MRV Communications group contributed EUR 19,738 thousand to revenues and negative EUR 4,097 thousand to the net loss of ADVA Optical Networking. If the acquisition would have been effective on January 1, 2017, the group's revenues would have been increased by EUR 64,656 thousand while net loss of the group would have been EUR 12,079 thousand higher.

Dissolution of OptXCon Inc.
ADVA Optical Networking North America held 44.5% shares in OptXCon Inc., Raleigh (North Carolina), USA. The entity was inactive since 2002 and has been deregistered on May 31, 2017.

(7) Foreign currency translation

The functional currency of each group company is the currency of the main economic environment in which the company operates. The reporting currency of ADVA Optical Networking's consolidated financial statements is the functional currency of the parent company, ADVA Optical Networking SE (EUR).

Transactions in foreign currencies are initially recorded by the group entities at their respective functional currency rates prevailing on the date of the transaction. Monetary assets and liabilities denominated in foreign currencies are retranslated at the functional currency spot rate of exchange ruling on the reporting date. Non-monetary items that are measured in terms of historical cost in a foreign currency are translated using the exchange rates on the dates of the initial transactions. Non-monetary items measured at fair value in a foreign currency are translated using the exchange rates on the date when the fair value is determined.

The assets and liabilities of foreign operations are translated into EUR at the rate of exchange prevailing on the reporting date, and their income statements are translated at the average rate for the reporting period. The exchange differences arising from the translation are recognized in accumulated other comprehensive income. On disposal of a foreign operation, the component of accumulated other comprehensive income relating to that particular foreign operation is recognized in the income statement.

Any goodwill arising on the acquisition of a foreign operation and any fair value adjustments to the carrying amount of assets and liabilities arising on acquisition are treated as assets and liabilities of the foreign operation and translated at the closing rate.

The relevant currency translation rates to EUR are listed below:

	Closing rate on Dec. 31, 2017	Closing rate on Dec. 31, 2016	Average rate for the period Jan. 1 to Dec. 31, 2017	Average rate for the period Jan. 1 to Dec. 31, 2016
AUD*	1.5346	–	1.5184	–
BRL	3.9729	3.4305	3.6064	3.8645
CHF	1.1702	1.0739	1.1116	1.0901
CNY	7.8044	7.3202	7.6271	7.3502
GBP	0.8872	0.8562	0.8764	0.8185
HKD	9.3720	8.1751	8.8010	8.5937
ILS	4.1635	4.0477	4.0609	4.2495
INR	76.6055	71.5935	73.4943	74.3713
JPY	135.0100	123.4000	126.6635	120.3335
PLN	4.1770	4.4103	4.2570	4.3625
SEK	9.8438	9.5525	9.6372	9.4668
SGD	1.6024	1.5234	1.5583	1.5278
USD	1.1993	1.0541	1.12926	1.1071

* MRV Australia was acquired on August 12, 2017. The average exchange rate for 2017 considers the period from August 12 to December 31, 2017.

The MRV Communications group was acquired on August 12, 2017. The average exchange rate applied for MRV entities with functional currency USD in 2017 considers the period from August 12 to December 31, 2017.

Notes to the consolidated statement of financial position

(8) Cash and cash equivalents

Cash and cash equivalents on December 31 include the following amounts to which ADVA Optical Networking has only limited access:

(in thousands of EUR)	2017	2016
Amounts pledged as security	277	146

On December 31, 2017, cash of EUR 1,491 thousand (December 31, 2016: EUR 3,436 thousand) is held in China and is subject to local exchange control regulations. These local exchange control regulations provide for restrictions on exporting capital from the country, other than through normal dividends.

Cash at banks earns interest at floating rates based on daily bank deposit rates.

Cash equivalents are invested for varying periods of between one day and three months, depending on the immediate cash requirements of the group, and earn interest at the respective short-term deposit rates.

On December 31, 2017, the group had EUR 8,000 thousand (on December 31, 2016: EUR 8,000 thousand) of undrawn committed borrowing facilities available in respect of which all conditions had been met.

(9) Trade accounts receivable

Trade accounts receivable are non-interest-bearing and are due within 30 to 120 days in general. For specific projects, other payment terms may be agreed.

Gross trade accounts receivable and depreciation of trade accounts receivable have developed as follows:

(in thousands of EUR)	2017	2016
Gross trade accounts receivable	**82,115**	**79,489**
Depreciation		
On January 1	1,015	1,583
Increase	801	635
Usage	-400	-461
Release	-582	-751
Exchange rate differences	-46	9
On December 31	**788**	**1,015**
Net trade accounts receivable	**81,327**	**78,474**

On December 31, 2017 and 2016, there was no material off balance sheet credit risk.

Depreciation of trade accounts receivable bases on an assessment of balances past their due date. On December 31, trade accounts receivable past due analyzes as follows:

(in thousands of EUR)	2017 gross value	2017 depreciation	2016 gross value	2016 depreciation
Less than 3 months	24,530	47	11,228	–
3 to 6 months	1,038	–	1,056	–
6 to 12 months	574	332	1,088	550
More than 1 year	513	409	465	465
	26,655	**788**	**13,837**	**1,015**

On December 31, 2017, EUR 25,867 thousand of trade receivables are past due but not impaired (prior year: EUR 12,822 thousand). Trade accounts receivable that are not overdue were not impaired in 2017 and 2016, respectively.

A group company entered into a supplier finance agreement, whereby it can finance receivables from a specific customer for a period of up to 120 days. Credit risks and settlement risks are transferred to the financing institution. The group paid an annual fee amounting to LIBOR plus 0.92% for transactions until August 31, 2014 and LIBOR plus 0.75% from September 1, 2014 on the volume of receivables transferred. In 2017, the group incurred interest expenses of EUR 135 thousand pertaining to this arrangement (prior year: EUR 216 thousand).

(10) Inventories

The table below summarizes the composition of inventories on December 31:

(in thousands of EUR)	2017	2016
Raw materials and supplies	16,799	21,764
Work in progress	3,028	4,179
Finished goods	61,867	66,857
	81,694	**92,800**

In 2017, depreciation of inventories amounting to EUR 7,303 thousand (prior year: EUR 5,053 thousand) was recognized as an expense within cost of goods sold. This amount includes reversals of earlier write-downs amounting to EUR 617 thousand (prior year: EUR 298 thousand) due to higher net realizable values.

In 2017 and 2016, material costs of EUR 260,230 thousand and EUR 321,499 thousand, respectively, have been recognized.

(11) Other current and non-current assets

On December 31, other current assets analyze as follows:

(in thousands of EUR)	2017	2016
Non-financial assets		
Prepaid expenses	3,723	2,707
Receivables due from tax authorities	1,881	3,632
Other	408	703
Total current non-financial assets	**6,012**	**7,042**
Financial assets		
Government grant allowances for research projects	2,630	2,478
Positive fair values of derivative financial instruments	12	903
Other	1,150	319
Total current financial assets	**3,792**	**3,700**
	9,804	**10,742**

Other current assets are non-interest-bearing and are generally due within 0 to 60 days.

Further disclosures on derivative financial instruments are given in note (21).

On December 31, other non-current assets analyze as follows:

(in thousands of EUR)	2017	2016
Non-financial assets		
Other	26	–
Total non-current non-financial assets	**26**	**–**
Financial assets		
Investments	1,374	1,374
Government grant allowances for research projects	618	1,567
Other	1,723	1,235
Total non-current financial assets	**3,715**	**4,176**
	3,741	**4,176**

Investments relate to 7.9% of the shares of Saguna Networks Ltd. Nesher, Israel, held by ADVA Optical Networking SE (prior year: 9% of the shares).

On December 31, 2017, government grants for thirteen research projects are recognized (December 31, 2016: fourteen research projects). These public grants relate to programs promoted by the EU and national governments. The commitments are partly subject to standard conditions that have been met to date.

The classification of financial instruments according to IAS 39 is included in note (28).

(12) Fixed assets

The following changes in fixed assets were recorded in 2017 and 2016:

(in thousands of EUR)	Historical cost							Accumulated depreciation								Net book values	
	Jan. 1, 2017	Additions	Disposals/ retirements	Reclassifications	Currency translation adjustments	Change in scope of consolidation	Dec. 31, 2017	Jan. 1, 2017	Depreciation of the period	Impairment of the period	Depreciation on disposals/ retirements	Reclassification	Currency translation adjustments	Change in scope of consolidation	Dec. 31, 2017	Dec. 31, 2017	Dec. 31, 2016
Finance leases	**2,543**	–	-81	–	-2	–	**2,460**	**2,543**	–	–	-81	–	-2	–	**2,460**	–	–
Property, plant and equipment																	
Land and buildings	16,140	119	-17	–	-461	95	15,876	8,071	1,195	–	-15	–	-316	–	8,935	6,941	8,069
Technical equipment and machinery	75,830	8,866	-3,971	141	-3,317	2,394	79,943	62,123	7,229	–	-3,686	–	-2,825	–	62,841	17,102	13,707
Factory and office equipment	13,964	1,381	-462	3	-525	126	14,487	11,062	1,699	–	-458	–	-431	–	11,872	2,615	2,902
Assets under construction	448	193	-3	-389	-12	3	240	–	–	–	–	–	–	–	–	240	448
	106,382	**10,559**	**-4,453**	**-245**	**-4,315**	**2,618**	**110,546**	**81,256**	**10,123**	–	**-4,159**	–	**-3,572**	–	**83,648**	**26,898**	**25,126**
Intangible assets																	
Goodwill	89,082	–	–	–	-5,003	30,362	114,441	47,544	–	–	–	–	-1,270	–	46,274	68,167	41,538
Capitalized development projects	222,614	39,033	–	–	-543	–	261,104	146,351	25,812	4,261	–	–	-495	–	175,929	85,175	76,263
Intangible assets acquired in business combinations	55,670	–	–	–	-4,655	21,658	72,673	41,386	4,065	361	–	–	-3,644	–	42,168	30,505	14,284
Other intangible assets	56,254	4,981	-2,401	245	-279	1,350	60,150	54,109	2,242	-	-2,286	–	-195	–	53,870	6,280	2,145
	423,620	**44,014**	**-2,401**	**245**	**-10,480**	**53,370**	**508,368**	**289,390**	**32,119**	**4,622**	**-2,286**	–	**-5,604**	–	**318,241**	**190,127**	**134,230**
Financial investments																	
Investments in associates and joint ventures	1,208	–	-1,062	–	-146	–	–	1,208	–	–	-1,062	–	-146	–	–	–	–
	1,208	–	**-1,062**	–	**-146**	–	–	**1,208**	–	–	**-1,062**	–	**-146**	–	–	–	–
	533,753	**54,573**	**-7,997**	–	**-14,943**	**55,988**	**621,374**	**374,397**	**42,242**	**4,622**	**-7,588**	–	**-9,324**	–	**404,349**	**217,025**	**159,356**

(in thousands of EUR)	Historical cost							Accumulated depreciation								Net book values	
	Jan. 1, 2016	Additions	Disposals/retirements	Reclassifications	Currency translation adjustments	Change in scope of consolidation	Dec. 31, 2016	Jan. 1, 2016	Depreciation of the period	Impairment of the period	Depreciation on disposals/retirements	Reclassification	Currency translation adjustments	Change in scope of consolidation	Dec. 31, 2016	Dec. 31, 2016	Dec. 31, 2015
Finance leases	**2,549**	–	-5	–	-1	–	**2,543**	**2,549**	–	–	-5	–	-1	–	**2,543**	–	–
Property, plant and equipment																	
Land and buildings	14,067	1,902	-265	–	-10	446	16,140	7,244	1,062	–	-233	–	-2	–	8,071	8,069	6,823
Technical equipment and machinery	68,695	8,852	-1,205	78	-87	-503	75,830	58,097	6,900	–	-1,168	–	-60	-1,646	62,123	13,707	10,598
Factory and office equipment	12,489	1,787	-261	13	-326	262	13,964	10,173	1,548	–	-246	–	-265	-148	11,062	2,902	2,316
Assets under construction	218	348	–	-121	3	-	448	–	–	–	–	–	–	–	–	448	218
	95,469	**12,889**	**-1,731**	**-30**	**-420**	**205**	**106,382**	**75,514**	**9,510**	–	**-1,647**	–	**-327**	**-1,794**	**81,256**	**25,126**	**19,955**
Intangible assets																	
Goodwill	77,177	–	–	–	-4,301	16,206	89,082	52,296	–	–	–	–	-4,222	-530	47,544	41,538	24,881
Capitalized development projects	189,635	39,412	-4,095	–	-2,338	–	222,614	127,196	25,165	–	-4,100	–	-1,910	–	146,351	76,263	62,439
Intangible assets acquired in business combinations	39,596	–	–	–	1,423	14,651	55,670	37,280	2,997	–	–	–	1,109	–	41,386	14,284	2,316
Other intangible assets	55,637	1,913	-255	30	-2	-1,069	56,254	53,715	1,903	–	-256	–	87	-1,340	54,109	2,145	1,922
	362,045	**41,325**	**-4,350**	**30**	**-5,218**	**29,788**	**423,620**	**270,487**	**30,065**	–	**-4,356**	–	**-4,936**	**-1,870**	**289,390**	**134,230**	**91,558**
Financial investments																	
Investments in associates and joint ventures	1,165	–	–	–	43	–	**1,208**	1,165	–	–	–	–	43	–	**1,208**	–	–
	1,165	–	–	–	**43**	–	**1,208**	**1,165**	–	–	–	–	**43**	–	**1,208**	–	–
	461,228	**54,214**	**-6,086**	–	**-5,596**	**29,993**	**533,753**	**349,715**	**39,575**	–	**-6,008**	–	**-5,221**	**-3,664**	**374,397**	**159,356**	**111,513**

Property, plant and equipment

The classification and changes in property, plant and equipment are shown in the analysis of changes in fixed assets.

In 2017 and 2016, there were neither impairments nor write-backs of property, plant and equipment impaired in prior years.

In 2017, the group received government grants for property, plant and equipment of EUR 90 thousand (prior year: nil). Based on grant allowances no allowances have been deducted from historical costs in 2017 (prior year: nil).

Goodwill

The table below shows the composition of goodwill on December 31, as well as the cash-generating unit to which the goodwill is allocated for impairment testing:

(in thousands of EUR)	2017	2016
FirstFibre Ltd. (ADVA Optical Networking York)	6,841	6,841
Cellware GmbH (ADVA Optical Networking SE plus)	481	481
Covaro Networks Inc. (ADVA Optical Networking SE plus)	10,150	10,150
Movaz Networks Inc. (ADVA Optical Networking North America)	4,448	4,448
Gryfsoft sp. z o.o. (ADVA Optical Networking SE plus)	130	130
Biran High-Tech Advisors Ltd. (ADVA Optical Networking SE plus)	277	277
Oscilloquartz SA (OSA Switzerland)	2,801	2,801
Time4 Systems Oy (ADVA Optical Networking SE plus)	89	89
FiSEC GmbH (ADVA Optical Networking SE plus)	28	28
Overture Networks Inc. (61% ADVA Optical Networking SE plus und 39% ADVA Optical Networking North America)	16,736	16,736
MRV Communications Gruppe (75% ADVA Optical Networking SE plus und 25% ADVA Optical Networking North America)	30,362	–
Effect of foreign currency translation	-4,176	-443
	68,167	**41,538**

Impairment of goodwill

In 2017 and 2016, no impairment of goodwill was recognized.

Key assumptions used in impairment testing

All entities, which are largely capable to generate revenues independently based on own customer relationships and own distribution channels are considered as separate cash-generating units. All dependent development service providing and sales service providing entities are considered together with the ADVA Optical Networking SE in one combined cash-generating unit going forward (ADVA Optical Networking SE plus) as ADVA Optical Networking as owner of all technologies is responsible for future developments and utilization. For impairment test purposes goodwill is generally allocated to the cash-generating unit in which the subsidiary is included, on which acquisition the goodwill has been recognized. 61% of the goodwill recognized in the course of the acquisition of Overture Networks Inc. has been allocated to ADVA Optical Networking SE plus and 39% has been allocated to ADVA Optical Networking North America based on fair value of technology and customer relationship at the date of the acquisition. Net assets of MRV Inc. and MRV US as well as 40% of customer relationships recognized in the purchase price allocation and 25% of goodwill related to the acquisition of MRV group have been allocated to ADVA Optical Networking North America. Thus the merger of MRV entities in the US with ADVA Optical Networking North America scheduled for 2018 has already been considered in the current impairment test calculation. Unchanged from 2016, the cash-generating units are ADVA Optical Networking SE plus, ADVA Optical Networking York, ADVA Optical Networking North America and OSA Switzerland.

On December 31, 2017 and 2016, the value in use of the goodwill was calculated based on future cash flows (discounted-cash-flow-method). The calculation is most sensitive to the following assumptions:

- Gross margins
- Discount rates
- Raw material prices
- Market share expected

Cash flows include the projected cash flows for the three subsequent years as per the approved budget and four-year planning for gross margins, market share and raw material prices. For further periods, a perpetual income is estimated based on nil growth with inflation offset.

The discount rate used for the calculation is a pre-tax rate. It considers the specific risk of each group company and is calculated according to the Capital Asset Pricing Model (CAPM). The cost of equity is composed of a risk-free interest rate and a specific risk mark-up calculated as the difference of the average market rate of return and the risk-free interest rate multiplied with the specific risk related to the company (beta coefficient). The beta coefficient is calculated on a peer group basis.

The calculation uses pre-tax discount rates depending on the different cash generating units.

- Pre-tax discount rate 14.62% to 17.35%
- Risk-free interest rate 1.43% on average
- Risk mark-up 6.5%
- Re-levered Beta coefficient (weighted average of the peer group) 1.39

Sensitivity analysis

The implications of adverse changes on the key assumptions for the recoverable amount are discussed below. Each key assumption is considered in turn, even though there are dependencies between the assumptions:

- Gross margin – a reduction of more than 2.9 percentage points of the expected average gross margin over the planning period would result in an impairment loss in the unit ADVA Optical Networking SE plus.
- Discount rate – an increased pre-tax discount rate of more than 5.2 percentage points would result in an impairment loss in the unit ADVA Optical Networking SE plus .
- Growth rate – a growth reduction of more than 36.8% would result in an impairment loss in the unit ADVA Optical Networking SE plus.

Capitalized development projects, intangible assets acquired in business combinations and other intangible assets

The table below summarizes the carrying amounts:

(in thousands of EUR)	Dec. 31, 2017	Dec. 31, 2016
Capitalized development projects	85,175	76,263
Intangible assets acquired in business combinations	30,505	14,284
Other intangible assets	6,280	2,145
	121,960	**92,692**

In 2017, borrowing costs of EUR 511 thousand (2016: EUR 908 thousand) were capitalized related to development projects with an expected duration of more than 12 months. Borrowing costs were capitalized at the weighted average rate of the financial liabilities of 1.9%.

Other intangibles assets mainly include licenses and software.

Intangible assets acquired in business combinations analyze as follows:

(in thousands of EUR)	Dec. 31, 2017	Dec. 31, 2016
Purchased technology Biran	–	111
Purchased technology Time4 Systems	–	456
Purchased technology FiSEC	702	993
Purchased hardware technology Overture	2,203	3,260
Purchased software technology Overture	3,226	3,919
Purchased technology MRV	8,239	–
Brand Ensemble	128	185
Purchased customer relationships OSA	85	166
Purchased customer relationships Overture	3,917	5,194
Purchased customer relationship MRV	12,005	–
	30,505	**14,284**

Amortization of intangible assets with a finite useful life comprises:

(in thousands of EUR)	2017	2016
Capitalized development projects	30,073	25,165
Intangible assets acquired in business combinations	4,426	2,997
Other intangible assets	2,242	1,903
	36,741	**30,065**

Amortization of intangible assets acquired in business combinations analyze as follows:

(in thousands of EUR)	2017	2016
Purchased technology Biran	110	105
Purchased technology Time4 Systems	456	127
Purchased technology FiSEC	290	291
Purchased hardware technology Overture	1,057	1,020
Purchased software technology Overture	693	666
Purchased technology MRV	558	–
Brand Ensemble	43	42
Purchased customer relationships OSA	72	73
Purchased customer relationships Overture	688	673
Purchased customer relationship MRV	459	–
	4,426	**2,997**

Purchased technology Biran and Time4 Systems has been fully depreciated in 2017.

In 2017, impairment for two capitalized development projects as well as one purchased technology with a total amount of EUR 4,622 thousand was recognized (2016: nil) as further development or usage of the underlying knowhow has been ceased.

In the income statement, amortization and impairment of capitalized development projects and amortization of purchased technology is included in cost of goods sold. Amortization of purchased customer relationship assets is included in selling and marketing expenses.

The methodology for calculating impairment is the same as the one used for goodwill impairment testing. The key assumptions and key sensitivities are also the same.

(13) Financial liabilities

The tables below detail financial liabilities and their maturity:

in thousands of EUR)	Dec. 31, 2017	Interest terms	Maturity		
			≤ 12 months	12 – 36 months	> 36 months
IKB Deutsche Industriebank loans*	3,123	Fixed rate, subsidized**	3,123	–	–
	18,750	Fixed rate, subsidized**	6,250	12,500	–
	7,500	Fixed rate, subsidized**	2,500	5,000	–
HSBC loan*	12,188	Fixed rate, subsidized**	12,188	–	–
Deutsche Bank bridge loan	55,000	Fixed rate, subsidized**	55,000	–	–
Total financial liabilities	**96,561**		**79,061**	**17,500**	–

in thousands of EUR)	Dec. 31, 2017	Interest terms	Maturity		
			≤ 12 months	12 – 36 months	> 36 months
IKB Deutsche Industriebank loans*	9,365	Fixed rate, subsidized**	6,148	3,217	–
	25,000	Fixed rate, subsidized**	6,250	12,500	6,250
	10,000	Fixed rate, subsidized**	2,500	5,000	2,500
HSBC loan*	15,000	Fixed rate, subsidized**	3,750	7,500	3,750
Total financial liabilities	**59,365**		**18,648**	**28,217**	**12,500**

* Key covenants refer to the group's year-end debt / equity ratio and to the quarter-end net liquidity.
** Subsidized by the German Reconstruction Loan Company (Kreditanstalt für Wiederaufbau, KfW).

The interest rate charged for interest-bearing financial liabilities during 2017 ranged between 1.40% and 2.55% p.a. on average.

On June 30, 2017, ADVA Optical Networking SE signed a new loan contract with Deutsche Bank amounting to EUR 55,000 thousand as a bridge loan for financing of the acquisition of the MRV Communications group.

The loan amount has been paid out on August 8, 2017, and is due for repayment latest on June 30, 2018. An interest rate of 0.5% p.a. applies during the first three months; the interest rate increases by 0.25% p.a. each in the two subsequent quarters and by further 0.15% p.a. in the fourth quarter after signing the contract.

Additionally, the company intends to convert the current financial liabilities into non-current financial liabilities. In this context, the company concluded a long-term loan amounting to EUR 10.0 million in January 2018. The company estimates the probability of not being able to convert its current financial liabilities to non-current financial liabilities to be very unlikely.

The fair value of the financial liabilities is stated in note (28).

(14) Trade accounts payable and other current and non-current liabilities

The trade accounts payable are non-interest-bearing and generally due within 30 to 90 days.

Other current liabilities on December 31 analyze as follows:

(in thousands of EUR)	2017	2016
Non-financial liabilities		
Liabilities to employees for vacation	3,295	2,048
Liabilities due to withheld wage income tax and social security contribution	2,788	1,777
Liabilities due to tax authorities	1,441	1,139
Obligations from subsidized research projects	2,750	2,256
Other	470	1,004
Total current non-financial liabilities	**10,744**	**8,224**
Financial liabilities		
Liabilities to employees for variable compensation and payroll	14,118	14,008
Liabilities from stock appreciation rights	145	–
Other	1,805	911
Total current financial liabilities	**16,068**	**14,919**
	26,812	**23,143**

On December 31, other non-current liabilities include:

(in thousands of EUR)	2017	2016
Non-financial liabilities		
Obligations from subsidized research projects	1,226	1,594
Other	1,006	1,469
Total non-current non-financial liabilities	**2,232**	**3,063**
Financial liabilities		
Other	946	200
Total non-current financial liabilities	**946**	**200**
	3,178	**3,263**

On December 31, 2017, other non-current non-financial liabilities primarily include deferred rental expense of EUR 980 thousand (prior year: EUR 1,377 thousand).

The classification of financial instruments according to IAS 39 is included in note (28).

(15) Provisions for pensions and similar employee benefits

Post-employment benefit plans are classified as either defined contribution or defined benefit plans.

Plan assets related to defined contribution plans are managed separately from the assets of the relevant company by a trustee. For such plans, the company pays fixed contributions into a separate entity or a fund and does not assume any other obligations. Payment obligations to defined contribution plans are recognized in profit or loss when they occur. Payment to government managed pension plans with fixed contributions are considered as defined contribution plans. ADVA Optical Networking maintains defined contribution plans in different group companies. In 2017, total expenses related to defined contribution plans amount to EUR 1,347 thousand (prior year: EUR 1,384 thousand). Furthermore, social security costs include employer´s contribution in Germany, which amounts to maximum 9.35% of the gross wages.

Under defined benefit plans the company is required to pay agreed benefits granted to present and past employees. Defined benefit plans may be funded or unfunded. The group maintains defined benefit plans in Switzerland, Italy, India and Israel.

The defined benefit plans in Switzerland and Israel are final salary related plans which in the case of Switzerland include a guaranteed minimum rate of return additionally. Benefits paid in conjunction with these plans comprise old-age retirement pensions as well as invalidity and surviving dependents' benefits. Trustees according to local statutory regulations administer the assets of these pension plans. The Italian and Indian defined benefit plans are unfunded and consider final salary assumptions.

On December 31, 2017, ADVA Optical Networking reports provisions for pensions amounting to EUR 5,822 thousand (December 31, 2016: EUR 4,705 thousand). At year-end, the carrying amount analyzes as follows:

(in thousands of EUR)	2017	2016
Present value of defined benefit obligations	19,903	15,232
Fair value of plan assets	-14,081	-10,527
Provisions for pensions and similar employee benefits	**5,822**	**4,705**

The change in the net defined benefit liability for pension plans derives as follows:

(in thousands of EUR)	Defined benefit obligations	Fair value of plan assets	Total
Jan. 1, 2017	15,232	-10,527	4,705
Additions from business combinations	4,935	-3,560	1,375
Expenses and income			
Current service cost	735	-	735
Interest expense (+)/income (-)	156	-106	50
Past service cost	–	–	–
Remeasurements			
Gains (-)/losses (+) arising from changes in financial assumptions	-174	–	-174
Gains (-)/losses (+) arising from changes in demographical assumptions	–	–	–
Gains (-)/losses (+) arising from experience	-109	–	-109
Gains (-)/losses (+) on plan assets, excluding amounts included in interest income	–	72	72
Employee contributions	412	-412	-
Transfers to funds	–	-513	-513
Benefits paid through plan assets for employees leaving the company	-74	74	–
Disbursements of ADVA Optical Networking	-49	–	-49
Exchange rate differences and other changes	-1,161	891	-270
Dec, 31, 2017	**19,903**	**-14,081**	**5,822**

On December 31, 2017, EUR 19,263 thousand of the defined benefit obligations relate to active employees and EUR 641 thousand relate to pensioners.

The average remaining period of service for employees and the weighted average duration of the obligations as of December 31, 2017 are as follows:

in years	Switzerland	Italy	India	Israel
Average remaining period of service	10.7	16.5	9.5	n/a
Weighted average duration	18.7	13.5	7.6	9.5

In general, the monthly payment of pensions starts if an employee in Switzerland or Israel reaches the retirement age, while in Italy and India a lump sum payment of the relevant accrued amount applies with retirement or resignation of an employee.

Employer contributions in 2018 are expected to amount to EUR 483 thousand.

In 2017, the defined benefit obligations are calculated on actuarial basis considering the following material assumptions for valuation parameters:

	Switzerland	Italy	India	Israel
Discount rate	0.75%	1.45%	7.50%	3.10%
Inflation rate	1.00%	1.75%	n/a	1.60%
Salary level trend	1.00%	2.00%	7.00%	2.00%

In 2016, the following valuation parameters have been assumed:

	Switzerland	Italy	India
Discount rate	0.65%	1.75%	6.50%
Inflation rate	1.00%	1.75%	n/a
Salary level trend	1.00%	2.00%	7.00%

Discount rates have been determined considering the weighted average duration of the obligations. The evaluation for Switzerland and Italy is based on high-quality corporate bonds with AA-rating. For India, the discount rate is based on government bond rates.

ADVA Optical Networking is exposed to risks arising from defined benefit plans. Changes in actuarial parameters, especially in discount rates, may have significant influence on the pension obligations.

The sensitivity analysis provided below shows the extent to which the defined benefit obligation would have been affected by changes in the relevant assumptions:

(in thousands of EUR)		Change in defined benefit obligation
Discount rate	Increase by 0.25%	**-702**
	Decrease by 0.25%	**747**
Salary level trend	Increase by 0.25%	**-211**
	Decrease by 0.25%	**210**

Sensitivities for discount rate and salary level trend have been considered in turn disregarding any potential dependencies between these assumptions. Separate actuarial computations have been performed for increase and decrease of the assumptions.

ADVA Optical Networking assumes inflation rate and pension entitlement trend to have minor impact on the amount of defined benefit obligations.

On December 31, 2017, plan assets split to major asset categories as follows:

	Quoted market prices	Other than quoted market prices
Equity instruments	16.79%	–
Bonds	19.81%	–
Real estate	16.89%	–
Alternative investments	7.53%	–
Qualified insurance policies	–	26.27%
Cash and cash equivalents	–	3.61%
Other	–	9.10%

Pension fund assets are monitored continuously and managed from a risk-and-yield perspective by the external trustees.

(16) Other provisions

The table below lists changes in the composition of the groups other provisions in the reporting period:

(in thousands of EUR)	Jan. 1, 2017	Usage	Release	Appropriation	Transfer	Currency translation difference	Changes in scope of consolidation	Dec. 31, 2017
Current provisions								
Warranty provision	2,581	-531	-898	1,479	–	-61	470	3,040
Personnel provisions	530	-3,154	-188	1,757	–	-84	3,050	1,911
Other short-term provisions	8,678	-9,869	-337	8,067	–	-423	10,927	17,043
	11,789	**-13,554**	**-1,423**	**11,303**	**–**	**-568**	**14,447**	**21,994**
Non-current provisions								
Warranty provision	1,264	-185	–	406	–	-36	–	1,449
Personnel provisions	216	–	–	–	-216	–	–	–
Other long-term provisions	27	–	–	2	–	–	–	29
	1,507	**-185**	**–**	**408**	**-216**	**-36**	–	**1,478**
Provisions total	**13,296**	**-13,739**	**-1,423**	**11,711**	**-216**	**-604**	**14,447**	**23,472**

The estimated expenses related to warranty claims reflect both past experience and current developments and are based on a percentage of sales revenues. Any differences between actual amounts and anticipated amounts are treated as changes in accounting estimates and affect earnings in the period in which the change occurs.

Current personnel provisions mainly include expenses for severance payments as well as employee's accident insurance and other expenses resulting from legal requirements.

Other current provisions primarily include provisions for outstanding invoices of uncertain amount and timing and provisions for potential obligations from existing contracts.

Non-current personnel provisions mainly included liabilities from share-based compensation transactions. At year-end 2017, these provisions were reclassified to current liabilities.

(17) Stockholders' equity

Common stock and share capital

On December 31, 2017, ADVA Optical Networking SE had issued 49,735,549 (prior year: 49,498,934) no par value bearer shares (hereinafter “common shares”), each representing a notional amount of share capital of EUR 1.00.

The common shares entitle the holder to vote at the annual general meeting and to receive dividends in case of a distribution. No restrictions are attached to the common shares.

Capital transactions

In connection with the exercise of stock options, 236,615 shares were issued to employees of the company and its affiliates out of conditional capital in 2017 (in 2016 in connection with the exercise of stock options 124,450 shares). The par value of EUR 237 thousand (prior year: EUR 125 thousand) was appropriated to share capital, whereas the premium resulting from the exercise of stock options as well as the exercise of option bonds in prior periods of EUR 793 thousand (prior year: EUR 296 thousand) was recognized within capital reserve.

Other information on the share option programs is included in note (34).

Authorized capital
According to the company's articles of association, the management board is authorized, subject to the consent of the supervisory board, to increase subscribed capital until May 19, 2020, only once or in successive tranches by a maximum of EUR 24,048 thousand by issuing new common shares in return for cash or non-cash contributions (conditional capital 2015/I). Subject to the consent of the supervisory board, the management board is further authorized to decide whether to exclude stockholders' subscription rights. Stockholders' subscription rights can be excluded for capital increases for cash contributions as well as contributions in kind if during the term of this authorization and in exclusion of shareholder subscription rights, the shares issued against contributions in cash or in kind do not exceed 20% of the share capital.

Conditional capital
No changes in conditional capital were proposed in the Annual Shareholders' Meeting on May 17, 2017.

Considering the above described capital transactions, the total conditional capital on December 31, 2017 amounts to EUR 4,576 thousand.

The changes in share capital, authorized and conditional capital are summarized below:

(in thousands of EUR)	Share capital	Authorized capital 2015/I	Conditional capital 2003/2008	Conditional capital 2011/I
Jan. 1, 2017	**49,499**	**24,048**	**96**	**4,717**
Changes due to Annual Shareholders' Meeting resolutions	–	–	–	–
Stock options exercised	237	–	-21	-216
Dec. 31, 2017	**49,736**	**24,048**	**75**	**4,501**

Capital reserve
The capital reserve includes premium payments from the issuance of shares, as well as additional contributions to the company's equity associated with the exercise of stock options. Additionally, the capital reserve contains the correspondent accumulated compensation expenses related to stock option rights issued amounting to EUR 19,456 thousand (prior year: EUR 18,535 thousand).

Accumulated other comprehensive loss/(income)
Accumulated other comprehensive loss/(income) is used to record exchange differences arising from the translation of the financial statements of foreign operations. In addition, the result from remeasurement of defined benefit obligations is included in this line item.

The tax effect related to components of other comprehensive loss/(income) is as follows:

(in thousands of EUR)	2017		
	pre tax	tax effect	after tax
Remeasurement of defined benefit obligations	-2,418	118	-2,300
	-2,418	**118**	**-2,300**

(in thousands of EUR)	2017		
	pre tax	tax effect	after tax
Remeasurement of defined benefit obligations	-2,636	92	-2,544
	-2,636	**92**	**-2,544**

Changes in stockholders' equity are summarized in the consolidated statement of changes in stockholders' equity.

Voting rights

According to section 33 paragraph 1, section 38 paragraph 1 and section 40 of the German Securities Trading Law (Wertpapier-Handelsgesetz, WpHG) the company published the following information on the ADVA Optical Networking homepage in 2017:

Date of change in investment	Name of investment owner	Threshold limit	Share of
Dec. 11, 2017	Deutsche Bank AG, Frankfurt am Main, Germany	below 3%	0.00%
Nov. 30, 2017	EGORA Holding GmbH, Planegg, Germany	below 15%	14.99%
Nov. 23, 2017	Internationale Kapitalanlagegesellschaft mit beschränkter Haftung, Düsseldorf, Germany	above 5%	5.13%
Nov. 15, 2017	Teleios Capital Partners LLC, Zug, Switzerland	above 15%	15.03%
Sep. 27, 2017	Duke University, Durham, USA	above 3%	3.01%
Jul. 28, 2017	The Goldman Sachs Group, Inc. , New York, USA	above 3%	4.39%
May 23, 2017	Dimensional Holdings Inc., Oviedo, USA	above 3%	3.01%
May 2, 2017	Finanzministerium im Auftrag des norwegischen Staates, Oslo, Norway	above 3%	3.19%
Feb. 20, 2017	Deutsche Asset Management Investment GmbH, Frankfurt, Germany	below 3%	2.95%
Jan. 11, 2016	Morgan Stanley, Wilmington, Delaware, USA	below 3%	1.63%

Notes to the consolidated income statement

(18) Revenues

In 2017 and 2016, revenues included EUR 57,734 thousand and EUR 60,250 thousand for services, respectively. The remaining revenues relate mainly to product sales.

A segmentation of revenues by geographic region is provided in the section on segment reporting under note (27).

(19) Other operating income and expenses

Other operating income and expenses analyze as follows:

(in thousands of EUR)	2017	2016
Other operating income		
Government grants received	2,083	2,011
Income for the supply of development services	755	80
Release of bad debt allowances	596	746
Release of provisions	1,423	3,284
Other	2,102	492
	6,959	**6,613**
Other operating expenses		
Impairments on trade accounts receivable	-118	-150
Deconsolidation result	–	-361
Other	-472	-290
	-590	**-801**
Other operating income and expenses, net	**6,369**	**5,812**

Other operating income mainly includes release of earn-out liabilities amounting to EUR 515 thousand related to acquisitions in prior years as the relevant conditions have not been met as well as insurance reimbursement amounting to EUR 328 thousand.

(20) Interest income and expenses

Interest income primarily includes interest from daily bank deposits and from other short-term deposits with maturities between one day and three months.

Interest expenses are primarily incurred on financial liabilities and on the sale of receivables. In addition, net interest expenses from valuation of defined benefit plans are included. For further details, refer to notes (9), (13) and (15).

(21) Other financial gains and losses, net, and derivative financial instruments

Other financial gains and losses, net, comprise the following:

(in thousands of EUR)	2017	2016
Foreign currency exchange gains	7,365	16,699
thereof: gains from forward rate agreements	*81*	*3,735*
Foreign currency exchange losses	-11,174	-16,991
thereof: losses from forward rate agreements	*-1,976*	*-1,615*
	-3,809	**-292**

Forward rate agreements
The group entered into fifteen forward rate agreements to hedge foreign currency exposure of expected future cash flows between October 4 and December 27, 2017. These agreements mature between January 8 and April 28, 2018. In 2017, unrealized profits and losses, net amounted to positive EUR 12 thousand.

Between January 28, 2016, and September 27, 2017, the group entered into nineteen forward rate agreements that matured in 2017. A net result of negative EUR 1,907 thousand was realized on these transactions.

Fair value disclosures

On December 31, the group held the following financial instruments measured at fair value through profit or loss:

(in thousands of EUR)	Fair value		Nominal value	
	2017	2016	2017	2016
Forward rate agreements	12	903	15,108	16,075

The nominal value is the accounting value from which payments are derived (underlying transaction). Since the nominal value itself is not at risk, the potential for changes in foreign exchange rates, interest rates and prices is hedged.

The fair value reflects the credit risk of the instrument. Since the group only uses standard instruments for its hedges, the fair value is determined using market prices and is not netted against any contrary trend in the value of underlying transactions.

The fair value of these transactions is presented within other current assets and other current liabilities in the statement of financial position.

(22) Income taxes

Income taxes in Germany consist of corporate income tax, the solidarity surcharge and trade taxes. The tax calculation in foreign countries is based on the applicable local tax rates. They vary between 15% and 37% (prior year: between 15% and 37%).

The table below shows the components of the group's total income tax expenses:

(in thousands of EUR)	2017	2016
Current taxes		
Current income tax charge	-1,724	-3,214
Adjustments in respect of current income tax for prior years	220	1,695
	-1,504	**-1,519**
Deferred taxes		
Temporary differences and tax loss carry-forwards	-938	4,409
Changes in tax rates	-1,595	-373
	-2,533	**4,036**
Income tax benefit (expense), net	**-4,037**	**2,517**

A reconciliation of income taxes based on the accounting profit/ (loss) and the expected domestic income tax rate for the parent company of 28.53% (prior year: 28.57%) to effective income tax (expense) benefit, net, is presented below:

(in thousands of EUR)	2017	2016
Accounting (loss/(income) before tax	**-191**	**19,015**
Expected statutory tax (benefit/(expense)	**55**	**-5,433**
Tax rate adjustments	-1,595	-373
Tax for prior periods	220	1,695
Foreign tax rate differential	-583	421
Non-tax-deductible stock option expenses	-146	-222
Differences from foreign branch offices	-61	-31
Non-taxable income and other non-tax-deductible expenses	-442	11,330
Other adjustments to recognition of deferred tax assets	-730	-12,737
Permanent differences	153	-
Recognition of previously unrecognized losses carried forward	-	8,189
Not capitalized deferred tax assets for tax losses	-1,305	-324
Other differences	397	2
Income tax expense (benefit), net	**-4,037**	**2,517**
Effective tax rate	**2,113.61%**	**-13.24%**

The net income effect resulting from tax rate changes is mainly related to ADVA Optical Networking North America in the amount of negative EUR 3,733 thousand (prior year: nil) as well as MRV Communications Inc. and MRV Communications Americas Inc. in the amount of positive EUR 2,180 (prior year: nil) due to the reduction of the corporate income tax rate in the USA becoming effective as of January 1, 2018.

The not capitalized deferred tax assets for tax losses are mainly related to ADVA Optical Networking SE in the amount of EUR 3,035 thousand (prior year: nil) and ADVA Optical Networking North America amounting to negative EUR 2,263 (prior year: nil).

The deferred tax assets and deferred tax liabilities on December 31, 2017 and 2016 as well as on January 1, 2016 relate to the following:

(in thousands of EUR)	2017		2016		Jan. 1, 2016	
	Deferred tax assets	Deferred tax liabilities	Deferred tax assets	Deferred tax liabilities	Deferred tax assets	Deferred tax liabilities
Current assets						
Cash and cash equivalents	1	–	1	–	–	–
Trade accounts receivable	104	-16	14	-31	50	-15
Inventories	2,618	-1,482	3,004	-1,109	2,557	-1,052
Other current assets	-	-5	-	-258	2	-511
Total current assets	**2,723**	**-1,503**	**3,019**	**-1,398**	**2,609**	**-1,578**
Non-current assets						
Leasing of assets	–	–	1	–	–	–
Property, plant and equipment	204	-1,028	404	-482	506	-284
Goodwill	–	-4,561	–	-2,249		
Capitalized development projects	–	-24,900	731	-22,311	709	-17,743
Intangible assets acquired in business combinations	2,004	-6,058	1,826	-3,448	743	-2,209
Other intangible assets	–	-104	20	-4	22	
Other non-current assets	661	–	363	-326	600	-92
Total non-current assets	**2,869**	**-36,651**	**3,345**	**-28,820**	**2,580**	**-20,328**

(in thousands of EUR)	2017 Deferred tax assets	2017 Deferred tax liabilities	2016 Deferred tax assets	2016 Deferred tax liabilities	Jan. 1, 2016 Deferred tax assets	Jan. 1, 2016 Deferred tax liabilities
Current liabilities						
Trade accounts payable	3	-154	5	–	495	-77
Provisions	1,093	–	2,235	–	2,044	-11
Deferred revenues	724	–	1,630	–	1,110	–
Other current liabilities	1,059	–	449	–	521	–
Total current liabilities	**2,879**	**-154**	**4,319**	**–**	**4,170**	**-88**
Non-current liabilities						
Other non-current liabilities	1,576	–	1,801	-38	1,803	-32
Total non-current liabilities	**1,576**	–	**1,801**	**-38**	**1,803**	**-32**
Steuerliche Verlustvorträge						
German tax loss carry-forwards	16,748	–	15,675	–	11,990	–
thereof: current	–	–	–	–	–	–
thereof: non-current	*16,748*	–	*15,675*	–	*11,990*	–
Foreign tax loss carry-forwards	5,260	-	7,840	–	5,981	–
thereof: current	*3,612*	–	*2,829*	–	*1,940*	–
thereof: non-current	*1,648*	–	*5,011*	–	*4,041*	–
Total tax loss carry-forwards	**22,008**	–	**23,515**	–	**17,971**	–
Total deferred tax assets/(liabilities)	**32,055**	**38,308**	**35,999**	**-30,256**	**29,133**	**-22,026**
thereof: current	*9,214*	*1,657*	*10,167*	*-1,398*	*8,719*	*-1,666*
thereof: non-current	*22,841*	*36,651*	*25,832*	*-28,858*	*20,414*	*-20,360*
Netting	-21,441	21,441	-23,340	23,340	-18,889	18,889
Deferred tax net	**10,614**	**-16,867**	**12,659**	**-6,916**	**10,244**	**-3,137**

Temporary differences are differences between the carrying amount of an asset or liability in the balance sheet according to IFRS and its tax base.

Deferred tax assets have been recognized for German and foreign tax loss carry-forwards since there exist net deferred tax liabilities arising from temporary differences respectively a positive tax planning, which are relevant for the recognition of tax loss carry-forwards as reported.

The German and foreign tax loss carry-forwards on December 31 comprise as follows:

(in thousands of EUR)	2017	2016
ADVA Optical Networking SE	149,702	129,289
ADVA Optical Networking North America	106,268	124,962
MRV Israel	17,917	–
OSA Switzerland	14,739	16,229
MRV International	5,504	–
ADVA Optical Networking Israel	3,561	1,839
MRV US	2,682	–
ADVA NA Holdings	56	1
ADVA IT Solutions	9	–
ADVA Optical Networking Poland	–	698
OSA Finland	–	21
	300,438	**273,039**

For ADVA Optical Networking deferred tax assets have been recognized in respect of tax losses in the amount of EUR 58,692 thousand (prior year: EUR 54,865 thousand) due to a reasonable assurance that taxable profits will be recognized in the near future that can be offset against tax loss carry-forwards.

ADVA Optical Networking North America has not reported further tax losses over an aggregated four-year-period and taking into account the following restrictions there is a reasonable assurance that taxable profits will be recognized in the near future that can be offset against tax loss carry-forwards.

Pursuant to the U.S. Tax Act, federal tax loss carry-forwards in the U.S. expire after twenty years. Furthermore, the utilization of a portion of tax loss carry-forwards is subject to annual limitations. Consequently, deferred tax assets have not been recognized in respect of tax loss carry-forwards in ADVA Optical Networking North America in the amount of EUR 85,228 thousand (prior year: EUR 98,613 thousand).

Furthermore, deferred tax assets for tax loss carry-forwards for state and local purposes expire in between five and twenty years. The utilization of these tax loss carry-forwards for state and local purposes is also subject to annual limitations. Consequently, deferred tax assets for EUR 3,443 thousand (prior year: EUR 3,292 thousand) have not been recognized in ADVA Optical Networking North America in respect of tax losses for state and local purposes.

Whether or not deferred tax assets are realized depends on the generation of future taxable income during periods in which these temporary differences are deductible. The group has considered the scheduled reversal of deferred tax liabilities and projected future taxable income in making this assessment.

On December 31, 2017 and 2016, no deferred tax liabilities on retained earnings of group companies have been recognized. ADVA Optical Networking committed that there will be no distribution of currently undistributed earnings from the company's major subsidiaries in the near future. The amount of temporary differences for which no deferred tax liabilities have been recognized totals EUR 11,872 thousand (prior year: EUR 11,842 thousand).

Deferred tax assets for pensions and similar employee benefits in the amount of EUR 118 thousand are recognized in accumulated other comprehensive loss (prior year: EUR 92 thousand).

(23) Employees and personnel expenses

In 2017 and 2016, respectively, the ADVA Optical Networking group had an average of 1,834 and 1,716 permanent employees and an average of 24 and 15 apprentices on its payroll, respectively. The breakdown of employees by department is as follows:

	2017	2016
Purchasing and Operations	381	375
Sales and Marketing	338	311
General and Administration	164	150
Research and Development	951	880
Apprentices	24	15
	1,858	**1,731**

Furthermore, ADVA Optical Networking employs 19 people each on a temporary basis effective December 31, 2017 and 2016, respectively.

Personnel expenses for 2017 and 2016 totaled EUR 171,607 thousand and EUR 157,167 thousand, respectively:

(in thousands of EUR)	2017	2016
Wages and salaries	143,262	131,955
Social security costs	25,095	22,354
Expenses for post-employment benefits	1,990	1,808
Share-based compensation expenses	1,259	1,050
	171,606	**157,167**

Expenses for retirement benefits include expenses related to defined contribution plans as well as service costs for defined obligation plans.

Further details on expenses for post-employment benefits are included in note (15).

Details regarding share-based compensation expenses are shown in note (34).

(24) Restructuring expenses

In 2017, restructuring expenses including impairment charges of capitalized development projects, severance payments, expenses related to changed use of facilities as well as related legal costs amounting to EUR 9,434 thousand have been recognized (2016: nil). The allocation to functional areas in the consolidated income statement is included in note (27).

Other disclosures

(25) Consolidated cash flow statement

The consolidated cash flow statement has been prepared in accordance with IAS 7.

Cash and cash equivalents disclosed in the cash flow statement coincide with the position "cash and cash equivalents" presented in the statement of financial position. This item merely includes short-term disposable cash at banks.

Cash flows from investing and financing activities are determined directly, whereas the cash flow from operating activities is derived indirectly from the consolidated income before tax. When cash flow from operating activities is calculated, the changes in assets and liabilities are adjusted for the effects of currency translation. As a result, it is not possible to reconcile the figures to the differences in the published consolidated statement of financial position.

The increase of financial liabilities from EUR 59,365 thousand to EUR 96,561 thousand mainly relates to cashflows from financing activities.

Cash and cash equivalents to which the group only has restricted access are explained in note (8).

(26) Earnings per share

In accordance with IAS 33, basic earnings per share are calculated by dividing consolidated net income by the weighted average number of shares outstanding.

There were no material dilution effects in the current fiscal year. Diluted earnings per share are calculated by adjusting the weighted average number of shares outstanding by the number of potential shares arising from granted and exercisable stock options on the balance sheet date.

No effects of dilution had to be considered in net income in 2017 and 2016.

The following table reflects the number of shares used in the computation of basic and diluted earnings per share:

	2017	2016
Weighted average number of shares (basic)	**49,607,289**	**49,409,011**
Effect of dilution from stock options	570,190	666,052
Weighted average number of shares (diluted)	**50,177,479**	**50,075,063**

There have been no other material transactions involving ordinary shares or potential shares between the balance sheet date and the date of authorization for issue of these financial statements.

(27) Segment reporting

In accordance with IFRS 8, operating segments are identified based on the way information is reported internally to the chief operating decision maker, i.e. the management board, and regularly reviewed to make decisions about resources to be assigned to the segment and assess its performance. The internal organizational and management structure and the structure of internal financial reporting activities are the key factors in determining what information is reported. For making decisions about resource allocation and performance assessment, management does not monitor the operating results separately on the level of business units. The group operates in one business segment only, namely the development, production and marketing of innovative connectivity solutions.

Within the ADVA Optical Networking group, management decisions are based on pro forma operating income. Pro forma financial information excludes non-cash charges related to share-based compensation plans and amortization and impairment of goodwill and acquisition-related intangible assets. Additionally, from Q3 2017 onwards expenses related to restructuring measures are not included. Income from capitalization of development expenses is shown as a separate line item and not deducted from research and development expenses.

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Segment information on December 31, 2017 presents as follows:

(in thousands of EUR)	Pro forma financial information	Intangible assets from acquisitions	Goodwill	Compensation expenses	Restructuring expenses	Disclosure of R&D expenses	Consolidated financial information
Revenues	514,471	–	–	–	–	–	514,471
Cost of goods sold	-340,093	-3,165	–	-18	-4,975	–	-348,251
Gross profit	**174,378**	**-3,165**	**–**	**-18**	**-4,975**	**–**	**166,220**
Gross margin	**33.9%**						**32.3%**
Selling and marketing expenses	-60,513	-1,262	–	-183	-931	–	-62,889
General and administrative expenses	-33,998	–	–	-646	-1,616	–	-36,260
Research and development expenses	-105,746	–	–	-412	-1,912	39,033	-69,037
Income from capitalization of development expenses	39,033	–	–	–	–	-39,033	–
Other operating income	6,959	–	–	–	–	–	6,959
Other operating expenses	-590	–	–	–	–	–	-590
Operating income	**19,523**	**-4,427**	**–**	**-1,259**	**-9,434**	**–**	**4,403**
Operating margin	**3.8%**						**0.9%**
Segment assets	**365,347**	**30,305**	**68,167**	**–**	**–**	**–**	**464,019**

Segment information on December 31, 2016 presents as follows:

(in thousands of EUR)	Pro forma financial information	Intangible assets from acquisitions	Goodwill	Compensation expenses	Restructuring expenses	Disclosure of R&D expenses	Consolidated financial information
Revenues	566,686	–	–	–	–	–	566,686
Cost of goods sold	-398,161	-2,210	–	-18	–	–	-400,397
Gross profit	**168,525**	**-2,210**	**–**	**-26**	**–**	**–**	**166,289**
Gross margin	**29.7%**						**28.4%**
Selling and marketing expenses	-58,969	-788	–	-257	–	–	-60,014
General and administrative expenses	-31,974	–	–	-278	–	–	-32,252
Research and development expenses	-99,261	–	–	-489	–	39,282	-60,468
Income from capitalization of development expenses	39,282	–	–	–	–	-39,282	–
Other operating income	6,613	–	–	–	–	–	6,613
Other operating expenses	-801	–	–	–	–	–	-801
Operating income	**23,415**	**-2,998**	**–**	**-1,050**	**–**	**–**	**19,367**
Operating margin	**4.1%**						**3.4%**
Segment assets	**388,730**	**14,284**	**41,538**	**–**	**–**	**–**	**444,552**

Additional information by geographical regions:

(in thousands of EUR)	2017	2016
Revenues		
Germany	107,581	90,413
Rest of Europe, Middle East and Africa	150,166	161,213
Americas	224,362	279,637
Asia-Pacific	32,362	35,423
	514,471	**566,686**

(in thousands of EUR)	Dec.31, 2017	Dec. 31, 2016
Non-current assets		
Germany	113,186	94,209
Rest of Europe, Middle East and Africa	16,221	17,273
Americas	85,433	45,720
Asia-Pacific	2,185	2,154
	217,025	**159,356**

Revenue information is based on the shipment location of the customers.

In 2017, the share of revenues allocated to major customers was EUR 162,454 thousand (prior year: EUR 186,493 thousand). In 2017, revenues with three major customer exceeded 10% of total revenues (2016: revenues with two major customers).

Non-current assets including property, plant and equipment, intangible assets and finance lease equipment are attributed based on the location of the respective group company.

(28) Financial instruments

The following tables analyze carrying amounts, amortized costs and fair values according to valuation categories. Only assets and liabilities, which fall into the categories defined by IFRS 7, are presented, so that the total amounts disclosed do not correspond to the balance sheet totals of each year.

	Amounts recognized according to IAS 39					
(in thousands of EUR, on Dec. 31, 2017)	Valuation category in accordance with IAS 39	Carrying amount	Amortized cost	Fair value recognized in profit and loss	Fair value	Hierarchy
Assets						
Cash and cash equivalents	LaR	58,376	58,376	–	58,376	Level 2
Trade accounts receivable	LaR	81,327	81,327	–	81,327	Level 2
Other current and non-current financial assets	LaR	7,507	7,507	–	7,507	Level 2
Derivatives without a hedging relationship	FVTPL	12	–	12	12	Level 2
Investments	AfS	1,374	1,374	–	1,374	Level 2
Total financial assets		**148,596**	**148,584**	**12**	**148,596**	
Liabilities						
Current and non-current financial liabilities (bank loans)	FLAC	96,561	96,561	–	97,007	Level 2
Trade accounts payable	FLAC	39,193	39,193	–	39,193	Level 2
Other current and non-current financial liabilities	FLAC	17,014	17,014	–	17,014	Level 2
Total financial liabilities		**152,768**	**152,768**	**–**	**153,214**	
Of which aggregated by category in accordance with IAS 39:						
Loans and receivables (LaR)		147,210	147,210	–	147,210	
Financial assets at fair value through profit or loss (FVTPL)		12	–	12	12	
Financial assets available for sale (AfS)		1,374	1,374	–	1,374	
Financial liabilities at amortized cost (FLAC)		152,768	152,768	–	153,214	

(in thousands of EUR, on Dec. 31, 2016)	Amounts recognized according to IAS 39					
	Valuation category in accordance with IAS 39	Carrying amount	Amortized cost	Fair value recognized in profit and loss	Fair value	Hierarchy
Assets						
Cash and cash equivalents	LaR	84,871	84,871	–	84,871	Level 2
Trade accounts receivable	LaR	78,474	78,474	–	78,474	Level 2
Other current and non-current financial assets	LaR	5,599	5,599	–	5,599	Level 2
Derivatives without a hedging relationship	FVTPL	903		903	903	Level 2
Investments	AfS	1,374	1,374	–	1,374	Level 2
Total financial assets		**171,221**	**170,318**	**903**	**171,221**	
Liabilities						
Current and non-current financial liabilities (bank loans)	FLAC	59,365	59,365	–	59,453	Level 2
Trade accounts payable	FLAC	73,290	73,290	–	73,290	Level 2
Other current and non-current financial liabilities	FLAC	15,119	15,119	–	15,119	Level 2
Total financial liabilities		**147,774**	**147,774**	**–**	**147,862**	
Of which aggregated by category in accordance with IAS 39:						
Loans and receivables (LaR)		169,847	168,944	–	168,944	
Financial assets at fair value through profit or loss (FVTPL)		903	–	903	903	
Financial assets available for sale (AfS)		1,374	1,374	–	1,374	
Financial liabilities at amortized cost (FLAC)		147,774	147,774	–	147,862	

The fair value of financial liabilities has been calculated based on future cash flows by using arm's length interest rates. On December 31, 2017 and 2016, respectively, no financial instruments were measured at cost or at fair value through other comprehensive income.

Investments relate to equity instruments of Saguna Networks Ltd. with no quoted prices in active markets. This investment is accounted for at cost. On December 31, 2017, ADVA Optical Networking does not intend to sell the investment.

The group uses the following hierarchy for determining the fair value of financial instruments:

Level 1: Quoted prices in active markets for identical assets or liabilities.

Level 2: Techniques for which all inputs that have a significant effect on the recorded fair value are observable, either directly or indirectly. Forward rate agreements are measured using quoted forward exchange rates and yield curves derived from quoted interest rates according to the maturities of the contract.

Level 3: Techniques, which use inputs that are not based on observable market data.

Fair values of assets and liabilities at fair value through profit or loss are calculated using level 2 valuation techniques. On December 31, 2017 and 2016, no valuations were made according to levels 1 or 3. In 2017 and 2016, no transfers between hierarchy levels occurred.

The group has not used the option to designate financial assets as "at fair value through profit or loss" on initial recognition of financial assets. The group has neither used the option to designate financial liabilities as "at fair value through profit or loss" on initial recognition of these liabilities.

Gains and losses as well as interest income and expenses from financial instruments are analyzed in the table below:

(in thousands of EUR)	Note	2017	2016
Gains and losses			
Financial assets and liabilities at fair value through profit or loss	(21)	-1,895	2,120
Loans and receivables	(9, 19)	-337	-34
Interest income and expenses	(20)		
Interest income from loans and receivables		186	382
Interest expense related to financial liabilities measured at amortized cost		-1,297	-1,086

(29) Financial risk management

Goals, guidelines and processes of the group's risk management system are discussed in detail in the risk report within the management report. ADVA Optical Networking's capital management is described in note (30).

The compliance department is responsible for group-wide monitoring of observance of the processes and guidelines of the risk management system defined by the ADVA Optical Networking management board.

Due to ADVA Optical Networking's business activities financial risks arise in essence from fluctuations in international currencies as well as intensifying price pressure resulting in lower margins. In the risk report these risks are reported as operational excellence risks and growth and profitability risks, respectively.

Foreign currency risks

Foreign currency risks arise from unfavorable changes in foreign currency exchange rates and according to IFRS affect monetary financial instruments denominated in currencies other than the functional currency of the respective group entity.

Due to a major portion of the group's revenues and costs being generated in foreign currencies, ADVA's profit is particularly subject to fluctuations in the EUR/USD, GBP/USD, EUR/ILS and EUR/PLN exchange rates. In 2017, on a net basis, the group realized significant GBP inflows and USD outflows. To combat fluctuations, the USD net cash flows are in part hedged against GBP using forward exchange agreements. The duration of such agreements follows ADVA's communication to the capital markets. With the acquisition of MRV Communications, the group substantially decreased its exposure in USD as costs and revenues are increasingly balanced. Short-term, the acquisition nevertheless increased the group's exposure due to increased financial liabilities in USD. In addition, also the group's mid-term risk exposure towards ILS substantially increased due to MRV Communication's material development activities in this region.

Sensitivity analysis

The following table summarizes the foreign currency exposure on the net monetary positions on December 31, 2017, and illustrates the effect on 2017 profit or loss of a 10% change in the relevant exchange rates:

(in thousands of EUR)	EUR/ USD	USD/ GBP	EUR/ CHF	USD/ CHF	EUR/ PLN	EUR/ ILS
ADVA Optical Networking SE	44,503	–	-152	–	928	5,576
ADVA Optical Networking York	–	3,686	–	–	–	–
ADVA Optical Networking North America and ADVA NA Holdings	9,545	-18	–	–	–	–
ADVA Optical Networking Trading	-54	–	–	–	–	–
OSA Switzerland	–	–	-5,188	2,792	–	–
ADVA Optical Networking Israel	–	–	–	–	–	-7
ADVA Optical Networking Polen	–	–	–	–	1,676	–
Net exposure in consolidated financial statements	**53,994**	**3,668**	**-5,340**	**2,792**	**2,604**	**5,569**
Appreciation of USD vs. EUR, of GBP vs. EUR and USD and of CHF vs. EUR and USD	10%	10%	10%	10%	10%	10%
Total effect on net income	**5,399**	**367**	**-534**	**279**	**260**	**557**

A depreciation of the currencies of 10% would have an equal and opposite effect.

In addition, a weakening of foreign currencies, especially of the USD and the GBP, can have a significant financial impact on the ability to price ADVA Optical Networking's products competitively.

Decrease in margins

Procurement is a key focus area for customers and their cost-saving initiatives. Purchases, especially for multi-year projects are often conditioned on gradual price decreases. In addition, several products are essentially being commoditized with many competing vendors. The group has many preventive action plans in place. Most important is its focus on innovation. In order to successfully defend higher prices, the group consistently pushes the limits of new technology in its products, improves its processes, and communicates the value, reliability, scalability, cost-effectiveness, performance and technological leadership of its solutions to all of its customers.

The table below analyzes the group's non-derivative financial liabilities according to their maturity based on the remaining time at the balance sheet date to the contractual maturity date:

(in thousands of EUR, on Dec. 31, 2017)	Note	Carrying value	Future cash flows					
			≤ 12 months		13 – 36 months		> 36 months	
			Redemption	Interest	Redemption	Interest	Redemption	Interest
Financial liabilities (bank loans)	(13)	96,561	79,061	492	17,500	394	–	–
Trade accounts payable and other financial liabilities	(14)	56,207	55,261	–	946	–	–	–
			134,322	**492**	**18,446**	**394**	–	–

(in thousands of EUR, on Dec. 31, 2016)	Note	Carrying value	Future cash flows					
			≤ 12 months		13 – 36 months		> 36 months	
			Redemption	Interest	Redemption	Interest	Redemption	Interest
Financial liabilities (bank loans)	(13)	59,365	18,648	814	28,217	774	12,500	109
Trade accounts payable and other financial liabilities	(14)	93,593	93,393	–	200	–	–	–
		152,958	**112,041**	**814**	**28,417**	**774**	**12,500**	**109**

(30) Capital management

The goal of ADVA Optical Networking's capital management is to provide sufficient funds to ensure ongoing operations and to support the groups projected growth at any time. The group defines capital as the total of stockholders' equity and financial liabilities. On December 31, 2017, stockholders' equity was at EUR 227,021 thousand or at 48.9% of the balance sheet total (prior year: EUR 238,947 thousand or 53.8% of the balance sheet total). Financial liabilities were at EUR 96,561 thousand on December 31, 2017 (prior year: EUR 59,365 thousand), with maturities typically exceeding the life of the assets being financed. The loan contracts require the compliance with specific key financial covenants. Financial covenants relate to the debt/equity-ratio and net liquidity per quarter-end. If financial covenants are not met, early redemption of financial liabilities may be requested. As a result, the maturity structure was changed concerning the loan at HSBC at December 31, 2017 (see note (13)). In managing its capital, ADVA Optical Networking focusses on minimizing interest expenses, as long as access to funds is not at risk. Excess funds are generally used to redeem debt.

Cash pooling is implemented for USD bank accounts. The respective cash balances are transferred to a pooling account on a daily basis. Interest is calculated based on the consolidated balances.

(31) Other financial obligations and financial commitments

Lease commitments

The group has non-cancellable operating leases, primarily for buildings and cars. There are no sub-lease agreements.

The future minimum lease payments due on operating leases are listed in the table below:

(in thousands of EUR)	Dec. 31. 2017	Dec. 31. 2016
Up to one year	6,938	9,253
One to five years	11,045	13,113
More than five years	3,844	5,704
	21,827	**28,070**

Lease payments for buildings including parking spaces amount to EUR 5,711 thousand and EUR 5,252 thousand in 2017 and 2016, respectively. Lease payments for cars consisting of monthly installments plus servicing charges and road tax totaled EUR 1,541 thousand and EUR 1,140 thousand in 2017 and 2016, respectively.

Other obligations

On December 31, 2017, the group had purchase commitments totaling EUR 31,206 thousand (on December 31, 2016: EUR 44,799 thousand) in respect to suppliers.

Guarantees

Group entities have issued guarantees in favor of customers. On December 31, 2017, performance bonds with a maximum guaranteed amount of EUR 3,261 thousand were issued (on December 31, 2016: EUR 3,819 thousand). At year-end 2017, ADVA Optical Networking does not expect claims from these guarantees.

(32) Contingent liabilities

In the normal course of business, claims may be asserted or lawsuits filed against the company and its subsidiaries from time to time. On December 31, 2017, ADVA Optical Networking does not expect that potential titles or litigations in detail or in total will have a material impact on its financial position or operating performance.

(33) Auditor's fees and other services from auditors

Since June 9, 2010, PricewaterhouseCoopers GmbH Wirtschaftsprüfungsgesellschaft (PwC), Munich, Member of the German Wirtschaftsprüfungskammer in Berlin, is the auditor of the company and the group. After internal rotation in 2014, Holger Graßnick is the responsible certified accountant for the company.

In 2017 and 2016, the following fees charged by the legal auditor were recognized as expenses:

(in thousands of EUR)	2017	2016
Year-end audit	443	301
Other consulting services	87	86
	530	**387**

Other consulting services mainly include services in the course of the implementation of new accounting standards and consulting projects regarding digitalization.

(34) Stock option programs

To date, the company has issued stock options (Plan XIV) and stock appreciation rights for employees (Plan XV). Generally, both share-based compensation programs for the management board and employees of the company and its subsidiaries are still available for issuance of share-based compensation instruments.

Both contracts stipulate a four-year vesting period and a total contractual life of seven years for the respective rights issue. The rights may only be exercised if the volume weighted average of the company share closing prices on the ten stock exchange trading days before the first day of each exercise period in which the option is exercised is at least 20% of the purchase price. In addition, the calculation of the maximum bonus for stock appreciation rights is based on the share price at the date of exercise, with the share price being capped at EUR 20.00. In addition, options issued to the management board from Plan XIV include a profit limitation. They are referred to as Plan XIVa.

All option rights are non-transferable. They may only be exercised as long as the entitled person is employed on a permanent contract by the company or by a company in which ADVA Optical Networking SE has direct or indirect interest. Option rights issued to apprentices may only be exercised if the apprentices are hired by the company or by an affiliated company on a permanent contract. All option rights expire upon termination of the employment contract. In the event that the person entitled dies, becomes unable to work or retires, special provisions come into force.

The group of people to whom option rights can be issued is defined separately for each stock option program. According to the resolution on May 11, 2016, 25.34% of option rights - in total 1,205,839 options rights - authorized pursuant to Plan XIV could be issued to members of the management board, 4.78% - in total 227,463 options rights - to the management of affiliated companies, 29.54% - in total 1,405,702 options rights - to company employees, and 40.34% - in total 1,919,636 options rights - to employees of affiliated companies. The management board specifies the exact group of people entitled to exercise rights and the scope of each offer. In case management board gets option rights, supervisory board will do so.

Subject to the conditions under which option rights are issued, each option right entitles the individual to purchase one common share in the company. The stock appreciation rights entitle the recipient to receive a bonus for difference between the defined strike price and the stock market price on the date of exercise (cash settlement). The company may opt to replace the granted stock appreciation rights with other participation rights as long as such other participation right economically equals the replaced stock appreciation right. The conditions of issue specify the term, the exercise price (strike price), any qualifying periods and the defined exercise periods.

Exercise periods are regularly linked to key business events in the company's calendar and each have a defined term. Certain other business events can lead to blocking periods, during which option rights cannot be exercised. Insofar as regular exercise periods overlap with such blocking periods, the exercise deadline shall be extended by the corresponding number of exercise days immediately after the end of such a blocking period. Option rights may be exercised only on days on which commercial banks are open in Frankfurt am Main, Germany.

In 2017, all remaining options and stock appreciation rights from plans IX, IXb und XI have been exercised or forfeited. One-third of the option rights granted pursuant to Plan IX, IXb and XI may not be exercised until two years after the grant date, another one-third three years after the grant date and the final one-third four years after the grant date. To exercise the options, certain exercise hurdles per tranche are to be considered. Exercise hurdles comprise a surplus on the strike price of 10%, 20% and 30% for the first, second and third tranche of Plan IX. Moreover in December 2010, the Supervisory Board approved a profit limitation for all options granted to members of the Management Board out of plan IX (referred to as plan IXb).

In the course of the acquisition of the MRV Communications group options granted to employees in prior years have been assumed. The obligation and expense related to options of employees remaining permantly with the company is reported as liability and expense in the consolidated financial statements of ADVA Optical Networking, The fair value of the outstanding options considers the agreed pruchase price for existing shares of USD 10.00 less the relevant exercise price of the options.

The fair value of stock options and stock appreciation rights is estimated by simulation (Monte Carlo method) using a program that was especially adjusted to the underlying plans and based on the assumed strategy for the exercise (earliest possible date).

The following computation parameters apply for option rights issued in 2017:

	Plan XIV	Plan XIVa
Weighted average share price (in EUR)	4.76	4.76
Weighted average strike price (in EUR)	4.98	4.98
Weighted expected volatility (in % per year)	45.33%	45.33%
Term (in years)	7	7
Weighted risk-free interest rate (in % per year)	-0.35%	-0.35%

The volatility is specified as fluctuation of the share price compared to the average share price of the period. In each case, expected volatility is calculated based on historic share prices (historic volatility). The risk-free interest rate is based on information on risk-free investments with corresponding terms.

For the calculation of the fair value of options, ADVA Optical Networking assumed that no dividends will be paid to stockholders.

The tables below present changes in the number of option rights outstanding.

Stock option program 2003 (Plan IX)

	Number of options	Weighted average strike price (in EUR)
Options outstanding on Jan. 1, 2016	**103,806**	**3.13**
Granted options	–	–
Exercised options	-82,950	2.71
Forfeited options	–	–
Expired options	–	–
Options outstanding on Dec. 31, 2016	**20,856**	**4.83**
Granted options	–	–
Exercised options	-20,856	4.83
Forfeited options	–	–
Expired options	–	–
Options outstanding on Dec. 31, 2017	**–**	**–**
Of which exercisable	–	–

The strike price for these options was between EUR 4.62 and EUR 5.04 (in 2016: between EUR 4.62 and EUR 5.04).

Stock options exercised in 2017 had an average share price of EUR 10.07 on the exercise date (in 2016: EUR 7.57).

Stock option program 2003 for the management board (Plan IXb)

	Number of options	Weighted average strike price (in EUR)
Options outstanding on Jan. 1, 2016	**75,000**	**5.04**
Granted options	–	–
Exercised options	–	–
Forfeited options	–	–
Expired options	–	–
Options outstanding on Dec. 31, 2016	**75,000**	**5.04**
Granted options	–	–
Exercised options	–	–
Forfeited options	–	–
Expired options	-75,000	5.04
Options outstanding on Dec. 31, 2017	**–**	**–**
Of which exercisable	–	–

Stock appreciation rights (Plan XI)

	Number of stock apprecia-tion rights	Weighted average strike price (in EUR)
Stock appreciation rights outstanding on Jan. 1, 2016	**9,000**	**5.96**
Granted stock appreciation rights	–	–
Exercised stock appreciation rights	–	–
Forfeited stock appreciation rights	–	–
Expired stock appreciation rights	–	–
Stock appreciation rights outstanding on Dec. 31, 2016	**9,000**	**5.96**
Granted stock appreciation rights	–	–
Exercised stock appreciation rights	-1,000	4.62
Forfeited stock appreciation rights	–	–
Expired stock appreciation rights	-8,000	6.13
Stock appreciation rights outstanding on Dec. 31, 2017	**–**	**–**
Of which exercisable	–	–

The strike price for these stock appreciation rights was between EUR 4.62 and EUR 6.13 (in 2016: between EUR 4.62 and EUR 6.13).

Stock options exercised in 2017 had an average share price of EUR 9.90 on the exercise date.

Stock option program 2011 (Plan XIV)

	Number of options	Weighted average strike price (in EUR)
Options outstanding on Jan. 1, 2016	**1,558,677**	**6.79**
Granted options	365,700	8.17
Exercised options	-41,500	4.75
Forfeited options	-29,200	6.68
Expired options	–	–
Options outstanding on Dec. 31, 2016	**1,853,677**	**7.11**
Granted options	754,000	4.98
Exercised options	-215,759	4.30
Forfeited options	-322,500	8.44
Expired options	–	–
Options outstanding on Dec. 31, 2017	**2,069,418**	**6.42**
Of which exercisable	396,918	4.39

The weighted average remaining contractual life for option rights outstanding on December 31, 2017, is 5.04 years (December 31, 2016: 4.88 years). The strike price for these options is between EUR 2.87 and EUR 10.16 (in 2016: between EUR 2.87 and EUR 10.16).

The average fair value of option rights granted in 2017 is EUR 1.83 (December 31, 2016: EUR 3.17).

Stock options exercised in 2017 had an average share price of EUR 8.59 on the exercise date.

Stock option program 2011 for the management board (Plan XIVa)

	Number of options	Weighted average strike price (in EUR)
Options outstanding on Jan. 1, 2016	**440,000**	**4.49**
Granted options	401,667	8.70
Exercised options	–	–
Forfeited options	–	–
Expired options	–	–
Options outstanding on Dec. 31, 2016	**841,667**	**6.50**
Granted options	150,000	4.98
Exercised options	–	–
Forfeited options	–	–
Expired options	–	–
Options outstanding on Dec. 31, 2017	**991,667**	**6.27**
Of which exercisable	230,000	4.40

The weighted average remaining contractual life for option rights outstanding on December 31, 2017, is 4.72 years (December 31, 2016: 5.32 years). The strike price for these options is between EUR 3.19 and EUR 8.70 (in 2016: between EUR 3.19 and EUR 8.70).

The average fair value of option rights granted in 2017 is EUR 1.71 (December 31, 2016: EUR 2.78).

Stock appreciation rights (Plan XV)

	Number of stock appreciation rights	Weighted average strike price (in EUR
Stock appreciation rights outstanding on Jan. 1, 2016	**59,400**	**3.57**
Granted stock appreciation rights	–	–
Exercised stock appreciation rights	-4,000	3.57
Forfeited stock appreciation rights	–	–
Expired stock appreciation rights	–	–
Stock appreciation rights outstanding on Dec. 31, 2016	**55,400**	**3.57**
Granted stock appreciation rights	–	–
Exercised stock appreciation rights	-15,200	3.57
Forfeited stock appreciation rights	–	–
Expired stock appreciation rights	–	–
Stock appreciation rights outstanding on Dec. 31, 2017	**40,200**	**3.57**
Of which exercisable	40,200	3.57

The weighted average remaining contractual life for stock appreciation rights outstanding on December 31, 2017, is 0.73 years (December 31, 2016: 1.73 years). The strike price for these stock appreciation rights is EUR 3.57 (in 2016: EUR 3.57).

Stock appreciation rights exercised in 2017 had an average share price of EUR 9.74 on the exercise date.

Compensation expenses arising from share-based compensation programs included in operating income were as follows:

(in thousands of EUR)	2017	2016
Plan XI	-1	-44
Plan XIV	875	1,278
Plan XIVa	46	86
Plan XV	28	-270
Plan XVI	–	–
xpense from stock options of MRV Inc.	311	–
	1,259	**1,050**

At December 31, 2017, the liability arising from stock appreciation rights is included in current liabilities and amounts to EUR 145 thousand. At December 31, 2016, EUR 216 thousand have been reported in non-current provisions. The decrease of the obligation is mainly due to the ongoing expiries of STARs. The intrinsic value of these liabilities amounts to EUR 99 thousand on December 31, 2017 (prior year: EUR 246 thousand).

(35) Related party transactions

Teleios Capital Partners LLC Zug, Switzerland, EGORA Holding GmbH, Martinsried/Munich, and its subsidiaries (the EGORA group), Saguna Networks Ltd., Nesher, Israel, Arista Networks, Santa Clara, USA, Fraunhofer Heinz Hertz Institute, Berlin, Harmonic Inc., San Jose, USA, and all members of the company's governing bodies and their relatives qualify as related parties to ADVA Optical Networking on December 31, 2017, in the sense of IAS 24.

Teleios Capital Partners LLC is an investment company based in Zug, Switzerland. On December 31, 2017, Teleios Capital Partners LLC held a 15.02% share in the equity of ADVA Optical Networking. No business relations existed with Teleios Capital Partners LLC.

On December 31, 2017, the EGORA group held a 14.99% share in the equity of ADVA Optical Networking.

ADVA Optical Networking SE holds 7.9% of the shares of Saguna Networks Ltd.. A service agreement with Saguna Networks Ltd. exists regarding the provision of development services for the companies of ADVA Optical Networking group.

In 2017, ADVA Optical Networking acquired components with an amount of EUR 15 thousand from the EGORA group (2016: EUR 27 thousand.) In 2017 and 2016, ADVA Optical Networking did not sell any products to the EGORA group.

ADVA Optical Networking has entered into several agreements with the EGORA group under which ADVA Optical Networking is entitled to make use of certain facilities and services of the EGORA group. In 2017 and 2016, these agreements were not utilized.

ADVA Optical Networking has entered into several agreements with the EGORA group under which ADVA Optical Networking is entitled to make use of certain facilities and services of the EGORA group. In 2017 and 2016, these agreements were not utilized.

On December 31, 2017 and 2016, no trade accounts payable and provision existed in respect to EGORA group.

In 2017 and 2016, Saguna Networks Ltd. has not performed development services for the group.

In 2017, ADVA Optical Networking acquired components with an amount of EUR 43 thousand from Arista Networks, Inc. (2016: nil). On December 31, 2017, no trade accounts payable and provisions existed in respect to Arista Networks, Inc. (December 31, 2016: nil).

ADVA Optical Networking entered a service agreement with Fraunhofer Heinz Hertz Institute. In 2017, ADVA Optical Networking acquired services with an amount of EUR 88 thousand (2016: nil). On December 31, 2017, trade accounts payable with an amount of EUR 86 thousand existed in respect to Fraunhofer Heinz Hertz Institute (December 31, 2016: nil).

In 2017, Harmonic Inc. acquired products with an amount of EUR 11 thousand from ADVA Optical Networking (2016: nil). On December 31, 2017 trade receivables of EUR 2 thousand existed in respect to Harmonic Inc. (2016: nil).

All transactions with the related parties listed above are conducted on an arm’s-length basis.

See note (36) for detailed information about compensation of the management board and the supervisory board.

(36) Governing boards and compensation

Management board

	Resident in	External mandates
Brian Protiva chief executive officer	Berg, Germany	Member of the board of directors of AMS Technologies AG, Martinsried, Germany
Christoph Glingener chief technology officer & chief operating officer	Jade, Germany	Member of the board of trustees of Fraunhofer Heinrich Hertz Institute, Berlin, Germany
Ulrich Dopfer chief financial officer	Alpharetta (Georgia), USA	-
Scott St. John chief marketing & sales officer (since October 1, 2017)	Raleigh (North Carolina),USA	-

Supervisory board

	Resident in	Occupation	External mandates
Nikos Theodosopoulos chairman	Manhasset (New York), USA	Founder and managing member, NT Advisors LLC, Manhasset, New York, USA	Member of the board of directors of Arista Networks, Inc., Santa Clara, CA, USA Member of the advisory board of Columbia Engineering Entrepreneurship, New York, NY, USA Member of the board of directors of Harmonic, Inc., San Jose, CA, USA Member of the advisory board der QoScience Inc., Plainview, NY, USA
Johanna Hey vice chairwoman	Cologne, Germany	Professor for tax law, University of Cologne, Cologne, Germany	Director of the Institut Finanzen und Steuern e.V., Berlin, Germany Member of the supervisory board of Gothaer Versicherungsbank VVaG, Cologne, Germany Member of the supervisory board of Gothaer Finanzholding AG, Cologne, Germany Member of the supervisory board of Cologne Executive School GmbH, Cologne, Germany
Hans-Joachim Grallert	Gröbenzell, Germany	Prof. em. Dr.-Ing.	Chairman of the management board “Eduard Rhein Foundation”, Hamburg, Germany

Compensation of the management board

The total management board compensation was EUR 1,538 thousand in 2017 and EUR 2,429 thousand in 2016.

The value of benefits granted analyzes across the individual board members as follows:

(in thousands of EUR)	Fixed	Variable	Total 2017	Total 2016
Brian Protiva Chief executive officer	267	167	434	911
Christoph Glingener Chief technology officer & Chief operating officer	266	113	379	819
Ulrich Dopfer Chief financial officer	271	101	372	699
Scott St. John Chief marketing & sales officer (since October 1, 2017)	68	285	353	–

The fixed compensation includes non-performance based considerations and fringe benefits (company car allowances). The variable compensation considers components related to short-term performance goals that are reported as current liabilities on December 31, 2017, as well as components based on long-term performance goals amounting to EUR 257 thousand (prior year: EUR 1,116 thousand) which in 2017 solely relate to issuance of options to Scott St. John.

The total management board compensation according to IFRS amounts to EUR 1,735 thousand (prior year: EUR 1,693 thousand) and includes current considerations (fixed compensation, fringe benefits and current variable compensation) totaling EUR 1,298 thousand (prior year: EUR 1,329 thousand) as well as long-term incentive components amounting to EUR 437 thousand (prior year: EUR 364 thousand).

The group paid pecuniary damage liability insurance premiums on behalf of members of the management board totaling EUR 12 thousand both in 2017 and 2016 (in equal amounts for each management board member), respectively.

In 2017 and 2016, no loans were granted to the members of the management board. At December 31, 2017, no receivables outstanding from members of the management board have been reported.

On December 31, the members of the management board held the following shares and stock options:

	Shares		Stock options	
	2017	2016	2017	2016
Brian Protiva Chief executive officer	401,030	401,030	260,000	335,000
Christoph Glingener Chief technology officer & Chief operating officer	–	–	325,000	325,000
Ulrich Dopfer Chief financial officer	500	500	259,667	259,667
Scott St. John Chief marketing & sales officer (since October 1, 2017)	–	–	150,000	–

The options to members of the management board were granted out of Plan XIV and Plan XIVa. Additionally, Ulrich Dopfer holds options from Plan XIV that were granted before he joined the ADVA Optical Networking management board. The option rights authorize the management board to purchase the said number of common shares in the company once the qualifying period has elapsed. Plan XIVa includes a profit limit of EUR 20.00 per option, whereas Plan XIV has no profit limitations.

The strike price for these option rights is

- EUR 5.05 for 103,000 options granted on August 15, 2012,
- EUR 3.90 for 130,000 options granted on November 15, 2013,
- EUR 3.19 for 60,000 options granted on May 15, 2014,
- EUR 5.15 for 150,000 options granted on May 15, 2015,
- EUR 8.70 for 401,667 options granted on May 15, 2016,
- EUR 4.98 for 150,000 options granted on November 15, 2017, respectively.

Further information on compensation of the management board is included in the remuneration report in the group management report.

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Compensation of the supervisory board
The fixed compensation to be paid to the supervisory board for 2017 and 2016 totaled EUR 235 thousand and EUR 229 thousand, respectively. This amount analyzes across the individual board members as follows:

(in thousands of EUR)	2017	2016
Nikos Theodosopoulos Chairman	100	100
Johanna Hey Vice chairwoman	90	90
Hans-Joachim Grallert (since February 19, 2016)	45	39

The compensation for the supervisory board of ADVA Optical Networking SE is paid out in quarterly installments. The fixed compensation for Q4 2017 amounting to EUR 59 thousand was paid out in January 2018. In the consolidated financial statements, this amount is recognized in other current liabilities.

The group paid pecuniary damage liability insurance premiums on behalf of members of the supervisory board totaling EUR 12 thousand in both 2017 and 2016, respectively.

On December 31, members of the supervisory board held the following shares:

	Shares	
	2017	2016
Nikos Theodosopoulos Chairman	–	–
Johanna Hey Vice chairwoman	–	–
Hans-Joachim Grallert	–	620

Further information on compensation of the supervisory board is included in the remuneration report in the group management report.

(37) Events after the balance sheet date

There were no events after the balance sheet date that materially affected the net assets and financial position of the group on December 31, 2017, or its financial performance for 2017. Similarly, there were no events considered material for disclosure.

Declaration of compliance with the German Corporate Governance Code

Pursuant to section 161 of the German Stock Corporation Law (AktG), the management board and the supervisory board have issued a declaration of compliance with the German Corporate Governance Code. This declaration is published on the group's website (www.advaoptical.com).

Meiningen, February 20, 2018

Brian Protiva Christoph Glingener

Ulrich Dopfer Scott St. John

Affirmative declaration of the legal representatives

We, the members of the management board of ADVA Optical Networking SE, to the best of our knowledge affirm that, in accordance with the applicable reporting principles, the management report and the consolidated financial statements of the ADVA Optical Networking group represent a true and fair view of the net assets, financial position and performance of the group, together with a description of the principal opportunities and risks associated with the expected development of the group.

Meiningen, February 20, 2018

Brian Protiva	Christoph Glingener
Ulrich Dopfer	Scott St. John

Independent auditor's report

To ADVA Optical Networking SE, Meiningen

Report on the audit of the consolidated financial statements and of the group nmanagement report

Audit opinions
We have audited the consolidated financial statements of ADVA Optical Networking SE, Meiningen, and its subsidiaries (the Group), which comprise the consolidated statement of financial position as at 31 December 2017, and the consolidated statement of comprehensive income, consolidated statement of profit or loss, consolidated statement of changes in equity and consolidated statement of cash flows for the financial year from 1 January to 31 December 2017, and notes to the consolidated financial statements, including a summary of significant accounting policies. In addition, we have audited the group management report of ADVA Optical Networking SE, which is combined with the Company's management report, for the financial year from 1 January to 31 December 2017. We have not audited the content of those parts of the group management report listed in the "Other Information" section of our auditor's report.

In our opinion, on the basis of the knowledge obtained in the audit,

- the accompanying consolidated financial statements comply, in all material respects, with the IFRSs as adopted by the EU, and the additional requirements of German commercial law pursuant to § [Article] 315e Abs. [paragraph] 1 HGB [Handelsgesetzbuch: German Commercial Code] and, in compliance with these requirements, give a true and fair view of the assets, liabilities, and financial position of the Group as at 31 December 2017, and of its financial performance for the financial year from 1 January to 31 December 2017, and
- the accompanying group management report as a whole provides an appropriate view of the Group's position. In all material respects, this group management report is consistent with the consolidated financial statements, complies with German legal requirements and appropriately presents the opportunities and risks of future development. Our audit opinion on the group management report does not cover the content of those parts of the group management report listed in the "Other Information" section of our auditor's report.

Pursuant to § 322 Abs. 3 Satz [sentence] 1 HGB, we declare that our audit has not led to any reservations relating to the legal compliance of the consolidated financial statements and of the group management report.

Basis for the audit opinions

We conducted our audit of the consolidated financial statements and of the group management report in accordance with § 317 HGB and the EU Audit Regulation (No. 537/2014, referred to subsequently as "EU Audit Regulation") and in compliance with German Generally Accepted Standards for Financial Statement Audits promulgated by the Institut der Wirtschaftsprüfer [Institute of Public Auditors in Germany] (IDW). Our responsibilities under those requirements and principles are further described in the "Auditor's Responsibilities for the Audit of the Consolidated Financial Statements and of the Group Management Report" section of our auditor's report. We are independent of the group entities in accordance with the requirements of European law and German commercial and professional law, and we have fulfilled our other German professional responsibilities in accordance with these requirements. In addition, in accordance with Article 10 (2) point (f) of the EU Audit Regulation, we declare that we have not provided non-audit services prohibited under Article 5 (1) of the EU Audit Regulation. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinions on the consolidated financial statements and on the group management report.

Key audit matters in the audit of the consolidated financial statements

Key audit matters are those matters that, in our professional judgment, were of most significance in our audit of the consolidated financial statements for the financial year from 1 January to 31 December 2017. These matters were addressed in the context of our audit of the consolidated financial statements as a whole, and in forming our audit opinion thereon; we do not provide a separate audit opinion on these matters.

In our view, the matters of most significance in our audit were as follows:

1. Recoverability of goodwill
2. Accounting treatment of internally generated intangible assets
3. Accounting treatment of deferred taxes
4. Accounting treatment of the acquisition of the MRV Communications Group

Our presentation of these key audit matters has been structured in each case as follows:

1. Matter and issue
2. Audit approach and findings
3. Reference to further information

Hereinafter we present the key audit matters:

1 Recoverability of goodwill

1. In the Company's consolidated financial statements goodwill amounting to EUR 68,167 thousand is reported. Goodwill is tested for impairment by the Company once a year or when there are indications of impairment to determine any possible need for write-downs. Impairment testing is carried out at the level of the groups of cash-generating units to which the relevant goodwill has been allocated. The carrying amount of the relevant cash generating units including goodwill is compared with the corresponding recoverable amount in the context of the impairment test. The calculation of the recoverable amount generally employs the value in use. The present value of the future cash flows from the respective group of cash-generating units normally serves as the basis of valuation. Present values are calculated using discounted cash flow models. For this purpose, the medium-term business plan adopted by the Group forms the starting point for future projections based on assumptions about long-term rates of growth. Expectations relating to future market developments and assumptions about the development of macroeconomic factors are also taken into account. The discount rate used is the weighted average cost of capital for the relevant group of cash-generating units. The impairment test determined that no write-downs were necessary.

The outcome of this valuation exercise is dependent to a large extent on the estimates made by the executive directors with respect to the future cash inflows from the respective group of cash-generating units, the discount rate used, the rate of growth and other assumptions, and is therefore subject to considerable uncertainty. Against this background and due to the complex nature of the valuation, this matter was of particular significance in the context of our audit.

2. As part of our audit, we assessed the methodology employed for the purposes of performing the impairment test, among other things. After matching the future cash inflows used for the calculation against

the medium-term business plan adopted by the Group, we evaluated the appropriateness of the calculation especially through reconciliation with general and sector-specific market expectations. Furthermore, we also evaluated the proper consideration of the costs for Group functions. In the knowledge that even relatively small changes in the discount rate applied can have a material impact on the value in use calculated in this way, we also focused our testing in particular on the parameters used to determine the discount rate applied, and evaluated the measurement model. We assessed the sensitivity analyses performed by the Company, in order to reflect the uncertainty inherent in the projections.

Overall, the measurement inputs and assumptions used by the executive directors are in line with our expectations and also fall within reasonable ranges from our point of view.

3. The Company's disclosures on goodwill are contained in sections (4) Recognition and measurement, (5) Significant accounting judgments, estimates and assumptions and (12) Fixed assets in the notes to the consolidated financial statements.

2 Accounting treatment of internally generated intangible assets

1. In the Company's consolidated financial statements an amount of EUR 85,175 thousand is reported under the balance sheet item "capitalized development projects". This item represents development costs incurred for new products, which have been capitalized in accordance with the provisions of IAS 38 and have already been partially amortized in line with their useful lives. An impairment test is carried out at least once annually for projects still under development in accordance with IAS 36. Own expenses capitalized in accordance with these provisions during the fiscal year amounted to EUR 39,033 thousand, representing a reduction in the expenses charged to profit or loss. The eligibility of the development expenses for capitalization depends on the criteria established by IAS 38.57 and includes considerable scope for judgment, for example with respect to future cash inflows or the expected useful lives of the products developed. Against this background and due to the underlying complexity of the methodological requirements relating to measurement and eligibility for capitalization, this matter was of particular significance for our audit.

2. As part of our audit, we evaluated inter alia the internal processes and controls for recording the development projects. We also assessed the methodology used to calculate the expenses eligible for capitalization. We assessed the eligibility for capitalization of material projects on the basis of the criteria set out in IAS 38.57. We evaluated the stage of progress of the particular project by means of discussions with members of staff in the R&D controlling department and inspection of the project documentation. We assessed the amount of the development costs capitalized and the recoverability of the development expenditure on the basis of suitable supporting evidence. In our view, the methodology applied by the Company for capitalizing development projects is appropriate, and the stage of completion of the projects and the development costs capitalized have been clearly documented.

3. The Company's disclosures on internally generated intangible assets are contained in sections (4) Recognition and measurement, (5) Significant accounting judgments, estimates and assumptions, (12) Fixed assets, (22) Income taxes and (27) Segment reporting in the notes to the consolidated financial statements.

3 Accounting treatment of deferred taxes

1. After netting, deferred tax assets amounting to EUR 10,614 thousand and deferred tax liabilities of EUR 16,687 thousand are reported in the Company's consolidated financial statements. Deferred tax assets were recognized to the extent that the management considers it probable that taxable profit will be available in the foreseeable future which will enable the deductible temporary differences and unused tax losses to be utilized. For this purpose, if insufficient deferred tax liabilities are available, future taxable profits are projected on the basis of the business plan. Deferred tax assets were not recognized in respect of unutilized tax losses and other deductible temporary differences amounting in total to EUR 220,706 thousand, since it is currently not probable that it will be possible to offset them against taxable profits. Deferred tax liabilities mainly arise from differences between the carrying amounts of the development projects in accordance with IFRSs and their tax bases in accordance with the applicable tax laws. From our point of view, the accounting treatment of deferred taxes was of particular significance in the context of our audit, as it depends to a large extent on the estimates and assumptions made by the executive directors and is therefore subject to uncertainties.

2. As part of our audit, we evaluated, among other things, the internal processes and controls for recording tax matters as well as the methodology adopted for the determination, accounting treatment and measurement of deferred taxes. We also assessed the recoverability of the deferred tax assets relating to deductible temporary differences and unutilized tax losses on the basis of the Company's internal forecasts of its future earnings situation, and we evaluated the appropriateness of the underlying estimates and assumptions.

Based on our audit procedures, we were able to satisfy ourselves that the estimates and assumptions made by the executive directors are justified and adequately documented.

3. The Company's disclosures on deferred taxes are contained in sections (4) Recognition and measurement, (5) Significant accounting judgments, estimates and assumptions and (22) Income taxes in the notes to the consolidated financial statements.

4 Accounting treatment of the acquisition of the MRV Communications Group

1. During the fiscal year, the Group acquired all of the shares in MRV Communications Inc., Chatsworth (California), USA, including all of its subsidiaries, via ADVA NA Holdings Inc., Atlanta, USA. The purchase price for the acquisition amounted in total to EUR 56,918 thousand. The assets acquired, liabilities and contingent liabilities assumed are recognized at their fair value at the date of the acquisition. After taking into account the share of the net assets acquired attributable to ADVA NA Holdings Inc. of EUR 26,556 thousand, the resulting purchased goodwill amounts to EUR 30,362 thousand. In view of the material impact of the overall amounts involved in the acquisition on the net assets, financial position and results of operations of the ADVA Optical Networking Group, and given the complexity of measuring the acquisition, it was of particular significance in the context of our audit.

2. For the purpose of our audit of the accounting treatment of the acquisition we initially inspected and assessed the relevant contractual agreements relating to the acquisition and reconciled the purchase price paid as consideration for the shares received with the supporting documentation for the payments made provided to us. We assessed the fair values for the acquisition concerned reported in the preliminary opening balance sheet. We evaluated the fair values determined by the Company by reconciling the quantity structure with the original bookkeeping records of the companies acquired and the parameters used. We also used checklists to establish whether the requirements set out in IFRS 3 for disclosures in the notes to the financial statements had been complied with in full. In conclusion, we were able to satisfy ourselves by means of the audit procedures described and others that, based on the information available, the acquisition of the MRV Communications Group has been appropriately presented overall.

3. The Company's disclosures on this corporate transaction are contained in sections (4) Recognition and measurement, (6) Principles of consolidation, scope of consolidation and shareholdings and (12) Fixed assets in the notes to the consolidated financial statements.

Other information

The executive directors are responsible for the other information. The other information comprises the following non-audited parts of the group management report, which we obtained prior of the date of our auditor's report:

- the statement on corporate governance pursuant to § 289f HGB and § 315d HGB included in section "Declaration on corporate governance and corporate governance report" of the group management report
- the corporate governance report pursuant to No. 3.10 of the German Corporate Governance Code

The other information comprises further the remaining parts of the annual report, which we obtained prior to the date of our auditor's report, – excluding cross-references to external information – with the exception of the audited consolidated financial statements, the audited group management report and our auditor's report.

The separate non-financial report pursuant to § 289b Abs. 3 HGB and § 315b Abs. 3 HGB is expected to be made available to us after the date of the auditor's report.

Our audit opinions on the consolidated financial statements and on the group management report do not cover the other information, and consequently we do not express an audit opinion or any other form of assurance conclusion thereon.

In connection with our audit, our responsibility is to read the other information and, in so doing, to consider whether the other information

- is materially inconsistent with the consolidated financial statements, with the group management report or our knowledge obtained in the audit, or
- otherwise appears to be materially misstated.

Responsibilities of the executive directors and the supervisory board for the consolidated financial statements and the group management report

The executive directors are responsible for the preparation of the consolidated financial statements that comply, in all material respects, with IFRSs as adopted by the EU and the additional requirements of German commercial law pursuant to § 315e Abs. 1 HGB and that the consolidated financial statements, in compliance with these requirements, give a true and fair view of the assets, liabilities, financial position, and financial performance of the Group. In addition the executive directors are responsible for such internal control as they have determined necessary to enable the preparation of consolidated financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the consolidated financial statements, the executive directors are responsible for assessing the Group's ability to continue as a going concern. They also have the responsibility for disclosing, as applicable, matters related to going concern. In addition, they are responsible for financial reporting based on the going concern basis of accounting unless there is an intention to liquidate the Group or to cease operations, or there is no realistic alternative but to do so.

Furthermore, the executive directors are responsible for the preparation of the group management report that, as a whole, provides an appropriate view of the Group's position and is, in all material respects, consistent with the consolidated financial statements, complies with German legal requirements, and appropriately presents the opportunities and risks of future development. In addition, the executive directors are responsible for such arrangements and measures (systems) as they have considered necessary to enable the preparation of a group management report that is in accordance with the applicable German legal requirements, and to be able to provide sufficient appropriate evidence for the assertions in the group management report.

The supervisory board is responsible for overseeing the Group's financial reporting process for the preparation of the consolidated financial statements and of the group management report.

Auditor's responsibilities for the audit of the consolidated financial statements and of the group management report

Our objectives are to obtain reasonable assurance about whether the consolidated financial statements as a whole are free from material misstatement, whether due to fraud or error, and whether the group management report as a whole provides an appropriate view of the Group's position and, in all material respects, is consistent with the consolidated financial statements and the knowledge obtained in the audit, complies with the German legal requirements and appropriately presents the opportunities and risks of future development, as well as to issue an auditor's report that includes our audit opinions on the consolidated financial statements and on the group management report.

Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with § 317 HGB and the EU Audit Regulation and in compliance with German Generally Accepted Standards for Financial Statement Audits promulgated by the Institut der Wirtschaftsprüfer (IDW) will always detect a material misstatement. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these consolidated financial statements and this group management report.

We exercise professional judgment and maintain professional skepticism throughout the audit. We also:

- Identify and assess the risks of material misstatement of the consolidated financial statements and of the group management report, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for our audit opinions. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control.

- Obtain an understanding of internal control relevant to the audit of the consolidated financial statements and of arrangements and measures (systems) relevant to the audit of the group management report in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an audit opinion on the effectiveness of these systems.
- Evaluate the appropriateness of accounting policies used by the executive directors and the reasonableness of estimates made by the executive directors and related disclosures.
- Conclude on the appropriateness of the executive directors' use of the going concern basis of accounting and, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the Group's ability to continue as a going concern. If we conclude that a material uncertainty exists, we are required to draw attention in the auditor's report to the related disclosures in the consolidated financial statements and in the group management report or, if such disclosures are inadequate, to modify our respective audit opinions. Our conclusions are based on the audit evidence obtained up to the date of our auditor's report. However, future events or conditions may cause the Group to cease to be able to continue as a going concern.
- Evaluate the overall presentation, structure and content of the consolidated financial statements, including the disclosures, and whether the consolidated financial statements present the underlying transactions and events in a manner that the consolidated financial statements give a true and fair view of the assets, liabilities, financial position and financial performance of the Group in compliance with IFRSs as adopted by the EU and the additional requirements of German commercial law pursuant to § 315e Abs. 1 HGB.
- Obtain sufficient appropriate audit evidence regarding the financial information of the entities or business activities within the Group to express audit opinions on the consolidated financial statements and on the group management report. We are responsible for the direction, supervision and performance of the group audit. We remain solely responsible for our audit opinions.
- Evaluate the consistency of the group management report with the consolidated financial statements, its conformity with German law, and the view of the Group's position it provides.
- Perform audit procedures on the prospective information presented by the executive directors in the group management report. On the basis of sufficient appropriate audit evidence we evaluate, in particular, the significant assumptions used by the executive directors as a basis for the prospective information, and evaluate the proper derivation of the prospective information from these assumptions. We do not express a separate audit opinion on the prospective information and on the assumptions used as a basis. There is a substantial unavoidable risk that future events will differ materially from the prospective information.

We communicate with those charged with governance regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that we identify during our audit.

We also provide those charged with governance with a statement that we have complied with the relevant independence requirements, and communicate with them all relationships and other matters that may reasonably be thought to bear on our independence, and where applicable, the related safeguards.

From the matters communicated with those charged with governance, we determine those matters that were of most significance in the audit of the consolidated financial statements of the current period and are therefore the key audit matters. We describe these matters in our auditor's report unless law or regulation precludes public disclosure about the matter.

Other legal and regulatory requirements

Further Information pursuant to Article 10 of the EU Audit Regulation

We were elected as group auditor by the annual general meeting on 17 May 2017. We were engaged by the supervisory board on 5 December 2017. We have been the group auditor of the ADVA Optical Networking SE, Meiningen, without interruption since the financial year 2010.

We declare that the audit opinions expressed in this auditor's report are consistent with the additional report to the audit committee pursuant to Article 11 of the EU Audit Regulation (long-form audit report).

German public auditor responsible for the engagement

The German Public Auditor responsible for the engagement is Holger Graßnick.

Munich, February 20, 2018

PricewaterhouseCoopers GmbH
Wirtschaftsprüfungsgesellschaft

sgd. Holger Graßnick
Wirtschaftsprüfer
(German Public Auditor)

sgd. ppa. Sonja Knoesch
Wirtschaftsprüfer
(German Public Auditor)

8 Additional information

What defines our team is a drive to go further than anyone has before. You can see it in the constantly improving efficiency of our DCI technology. With our FSP 3000 CloudConnect™, we're reducing emissions and leading the industry to a sustainable future.

Quarterly overview 2016-2017

(IFRS, in thousands of EUR, except stated otherwise)	2017 Q1	2017 Q2	2017 Q3	2017 Q4	2016 Q1	2016 Q2	2016 Q3	2016 Q4
INCOME STATEMENT								
Revenues	**141,835**	**144,225**	**111,173**	**117,238**	**121,962**	**157,243**	**159,453**	**128,028**
Pro forma cost of goods sold	-95,712	-97,543	-72,066	-74,773	-81,569	-114,276	-116,636	-85,680
Pro forma gross profit	**46,123**	**46,682**	**39,107**	**42,465**	**40,393**	**42,967**	**42,817**	**42,348**
Pro forma selling and marketing expenses	-15,939	-14,625	-14,348	-15,601	-15,498	-15,230	-13,842	-14,400
Pro forma general and administrative expenses	-8,177	-8,871	-8,230	-8,720	-7,719	-7,756	-7,917	-8,582
Pro forma research and development expenses	-27,324	-27,091	-26,751	-24,580	-24,663	-24,831	-25,139	-24,627
Income from capitalization of development expenses	10,748	11,447	8,566	8,272	7,872	7,817	11,635	11,958
Other operating income and expenses, net	1,210	1,649	850	2,660	1,565	1,246	741	2,260
Pro forma operating income	**6,641**	**9,191**	**-806**	**4,496**	**1,950**	**4,213**	**8,295**	**8,957**
Amortization of intangible assets from acquisitions	-782	-776	-1,389	-1,479	-671	-771	-770	-785
Stock compensation expenses	-358	-323	-896	318	-285	-362	-354	-50
Restructuring expense	–	–	-8,393	-1,041	0	0	0	0
Operating income (loss)	**5,501**	**8,092**	**-11,484**	**2,294**	**994**	**3,080**	**7,171**	**8,122**
Interest income and expenses, net	-191	-83	-176	-335	-191	53	-27	105
Other financial gains and losses, net	-1,002	-1,424	-190	-1,193	-6,045	2,011	-1,143	4,885
Income (loss) before tax	**4,308**	**6,585**	**-11,850**	**766**	**-5,242**	**5,144**	**6,001**	**13,112**
Income tax benefit (expense), net	1,877	-2,061	-2,139	-1,714	79	4,662	-2,740	516
Net income (loss)	**6,185**	**4,524**	**-13,989**	**-948**	**-5,163**	**9,806**	**3,261**	**13,628**
Earnings per share in EUR								
basic	0.12	0.09	-0.28	-0.02	-0.10	0.20	0.07	0.28
diluted	0.12	0.09	-0.28	-0.02	-0.10	0.20	0.07	0.27
BALANCE SHEET (as of period end)								
Cash and cash equivalents	69,709	80,774	57,150	58,376	73,402	82,521	81,238	84,871
Inventories	81,698	77,331	90,725	81,694	75,902	67,720	72,236	92,800
Goodwill	41,127	39,643	68,741	68,167	37,609	38,051	40,093	41,538
Capitalized development projects	81,302	86,665	83,807	85,175	62,908	64,739	70,453	76,263
Other intangible assets	17,266	16,489	31,946	36,785	17,278	16,567	16,584	16,429
Total intangible assets	139,695	142,797	184,494	190,127	117,795	119,357	127,130	134,230
Other assets	172,714	162,017	161,326	133,822	159,109	185,247	185,178	132,651
Total assets*	**463,816**	**462,919**	**493,695**	**464,019**	**426,208**	**454,845**	**465,782**	**444,552**
Total stockholders' equity	244,466	245,032	228,618	227,021	207,450	218,062	220,550	238,947
Net liquidity	**15,029**	**30,779**	**-44,097**	**-38,185**	**9,362**	**20,039**	**20,315**	**25,506**
CASH FLOW STATEMENT								
Cash flow from operating activities	5,623	29,615	-25,858	17,754	2,032	22,383	15,698	21,237
Gross capital expenditures for property, plant and equipment and other intangible assets	-5,220	-2,629	-3,140	-4,551	-2,642	-3,419	-3,931	-4,810
EMPLOYEES (as of period end)	**1,783**	**1,808**	**1,963**	**1,894**	**1,724**	**1,730**	**1,731**	**1,764**

Pro forma financial numbers exclude non-cash charges related to the stock compensation programs and amortization and impairment of goodwill and acquisition-related intangible asset as well as restructuring expenses.

* From 2017, deferred tax assets and liabilities are reported net according to IAS 12.74. 2016 reporting has been adjusted accordingly.

Multi-year overview 2007-2017

(IFRS, in Tausend EUR, außer anders angegeben)	2007 IFRS	2008 IFRS	2009 IFRS	2010 IFRS	2011 IFRS	2012 IFRS	2013 IFRS	2014 IFRS	2015 IFRS	2016 IFRS	2017 IFRS	Veränderung 2017 vs. 2016
INCOME STATEMENT	251,486	217,672	232,808	291,725	310,945	330,069	310,702	339,168	441,938	566,686	514,471	-9%
Revenues	**-158,774**	**-128,854**	**-140,041**	**-181,874**	**-191,560**	**-196,820**	**-188,561**	**-220,408**	**-284,521**	**-398,161**	**-340,094**	**-15%**
Pro forma cost of goods sold"	92,712	88,818	92,767	109,851	119,385	133,249	122,141	118,760	157,417	168,525	174,377	+3%
Pro forma gross profit*	**-59,685**	**-60,385**	**-60,005**	**-66,224**	**-67,418**	**-71,984**	**-72,942**	**-75,154**	**-85,410**	**-90,944**	**-94,511**	**+4%**
Pro forma selling and marketing expenses	-41,372	-40,682	-40,714	-49,391	-60,083	-65,055	-65,649	-67,461	-78,493	-99,260	-105,746	+7%
Pro forma general and administrative expenses	10,039	12,056	12,404	15,291	23,648	23,529	22,490	27,108	32,071	39,282	39,033	-1%
Pro forma research and development expenses	–	-2,251	–z	–	–	–	–	–	–	–	–	–
Income from capitalization of development expenses	86	1,736	1,650	3,761	1,751	2,059	2,531	6,214	4,392	5,812	6,369	+10%
Other operating income and expenses, net	1,780	-708	6,102	13,288	17,283	21,798	8,571	9,467	29,977	23,415	19,522	-17%
Pro forma operating income	**-10,727**	**-4,574**	**-2,443**	**-2,141**	**-2,493**	**-1,620**	**-683**	**-733**	**-346**	**-2,997**	**-4,426**	**+48%**
Amortization of intangible assets from acquisitions	-6,581	–	–	–	–	–	–	–	–	–	–	–
Stock compensation expenses	-3,186	-1,761	-1,378	-1,848	-1,583	-1,344	-913	-382	-2,876	-1,051	-1,259	+20%
Restructuring expense	–	–	–	–	–	–	–	–	–	–	-9,434	–
Operating income (loss)	**-18,714**	**-7,043**	**2,281**	**9,299**	**13,207**	**18,834**	**6,975**	**8,352**	**26,755**	**19,367**	**4,403**	**-77%**
Interest income and expenses, net	-853	-1,005	-1,215	-1,439	-1,531	-1,163	-1,144	-1,267	-838	-60	-785	+1,208%
Other financial gains and losses, net	-1,734	-1,103	543	3,130	2,328	834	-1,475	1,142	2,159	-292	-3,809	+1,204%
Income (loss) before tax	**-21,301**	**-9,151**	**1,609**	**10,990**	**14,004**	**18,505**	**4,356**	**8,227**	**28,076**	**19,015**	**-191**	**-101%**
Income tax benefit (expense), net**	-8,154	275	-289	-3,983	2,935	-1,783	7,279	148	-1,228	2,517	-4,037	-260%
Net income (loss)**	**-29,455**	**-8,876**	**1,320**	**7,007**	**16,939**	**16,722**	**11,635**	**8,375**	**26,848**	**21,532**	**-4,228**	**-120%**
Earnings per share in EUR**												
basic	-0.64	-0.19	0.03	0.15	0.36	0.35	0.24	0.17	0.55	0.44	-0.09	-120%
diluted	-0.64	-0.19	0.03	0.15	0.35	0.34	0.24	0.17	0.55	0.43	-0.09	-121%
BALANCE SHEET (as of period end)												
Cash and cash equivalents	41,576	46,560	50,882	54,085	59,110	70,625	80,934	83,877	93,850	84,871	58,376	-31%
Inventories	31,029	26,961	25,400	39,588	36,536	41,339	40,074	46,982	72,950	92,800	81,694	-12%
Goodwill	20,006	18,854	19,103	19,653	19,842	19,876	19,875	23,581	24,881	41,538	68,167	+64%
Capitalized development projects	12,238	19,829	25,449	29,571	39,231	47,497	52,080	56,438	62,439	76,263	85,175	+12%
Other intangible assets	18,178	12,926	9,991	7,467	5,541	3,586	2,699	2,861	4,238	16,429	36,785	+124%
Total intangible assets	50,422	51,609	54,543	56,691	64,614	70,959	74,654	82,880	91,558	134,230	190,127	+42%
Other assets**	80,769	70,670	66,172	83,758	99,636	101,172	103,544	111,098	133,177	132,651	133,822	1%
Total assets**	**203,796**	**195,800**	**196,997**	**234,122**	**259,896**	**284,095**	**299,206**	**324,837**	**391,535**	**444,552**	**464,019**	**4%**
Total stockholders' equity**	109,026	97,998	101,270	115,414	135,986	153,909	163,948	177,114	215,921	238,947	227,021	-5%
Net liquidity	**4,549**	**12,378**	**22,534**	**24,650**	**31,163**	**41,600**	**41,724**	**48,885**	**51,181**	**25,506**	**-38,185**	**-250%**
CASH FLOW STATEMENT												
Cash flow from operating activities	25,150	23,343	29,105	21,100	39,736	45,156	31,413	46,186	39,415	61,350	27,134	-56%
Gross capital expenditures for property, plant and equipment and other intangible assets	-11,900	-5,800	-6,783	-8,468	-9,507	-11,123	-7,707	-8,954	-8,836	-14,802	-15,540	+5%
EMPLOYEES (as of period end)	**1,040**	**1,042**	**1,100**	**1,203**	**1,304**	**1,378**	**1,425**	**1,491**	**1,524**	**1,764**	**1,894**	**+7%**

Pro forma financial numbers exclude non-cash charges related to the stock compensation programs and amortization and impairment of goodwill and acquisition-related intangible assets as well as non-recurring restructuring expenses.

* From 2012, amortization for capitalized development projects is presented as cost of goods sold; prior period information has been adjusted accordingly.

** In a retrospective restatement, deferred tax assets as of December 31, 2013, were increased by EUR 6,128 thousand. As a result, the line items "income tax benefit (expense), net", "net income" and "basic and diluted earnings per share" in the consolidated income statement in 2013 were increased accordingly. From 2017, deferred tax assets and liabilities are reported net according to IAS 12.74. 2016 reporting has been adjusted accordingly.

Glossary

A

ALM (advanced link monitoring)
ALM is a device that provides non-intrusive monitoring of fiber access networks independent of the services running over that fiber.

C

Carriers
Carriers, in general, are companies that build and maintain communications networks for commercial use. Beyond incumbent telephony companies, these also include new alternative carriers, which were established during the deregulation of the telecommunications market, and special service providers, which offer outsourced services (e.g., software applications or data storage) for enterprise customers.

Cesium clocks
Many network services and applications require the availability of a highly accurate primary frequency reference. This can be achieved using Cesium atomic clocks. Unlike off-air receivers, Cesium clocks are autonomous, self-contained primary references immune to external influences.

Cloud
Cloud in the context of IT describes a concept where applications no longer run on the user's in-house IT infrastructure (for example, a server) but are outsourced to a service provider whose IT infrastructure is not visible or known in detail – as if it was hidden in a cloud. A typical example is the use of software as a service, where the software is not stored on the user's machine, but on servers of the software service provider.

CloudConnect™
FSP 3000 CloudConnect™a version of the FSP 3000 platform, specifically designed for hyper-scale data center interconnect.

ConnectGuard™
Brand name for ADVA's encryption technology, implemented in many of the company's products.

CPE (customer premise equipment)
Terminal equipment located at a subscriber's premise and connected with a carrier's telecommunications network.

D

DCI (data center interconnect)
Network that connects geographically dispersed data centers.

DevOps (development and operations)
The term DevOps has its origins in software development. It describes a methodology that stresses communication, collaboration and cooperation between software developers and other information-technology (IT) professionals. In a broader sense DevOps refers to the tight alignment between product development teams and operational teams responsible for product introduction.

DSL (digital subscriber line)
DSL is a technology that provides fast digital data transmission over the copper wires of a local telephone network. The advantage of DSL is that broadband services like fast Internet access and Internet television signals can be delivered over the same twisted pair of copper wires that was originally deployed for phone service only.

DWDM (dense wavelength division multiplexing)
DWDM is a standardized WDM technology that uses up to 192 different wavelengths for data transmission over a single fiber. DWDM uses a 'dense' wavelength grid that requires high-precision optical components, maximizing the bandwidth per fiber. See also WDM (Wavelength Division Multiplexing).

E

EMS (electronics manufacturing services)
ADVA works with EMS partners that specialize in the volume production of electronic components and sub-assemblies.

Ensemble
A strategic division of ADVA Optical Networking focused on the development of software solution for network function virtualization.

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Ensemble Connector
Ensemble Connector is a family of software packages that enables communication service providers to provide the data path and virtual hosting functionality at a location of their choice.

Ethernet
Ethernet is a packet-based data transmission protocol with a data rate of 10Mbit/s. Fast Ethernet provides a data rate of 100Mbit/s, Gigabit Ethernet 1Gbit/s and 10 Gigabit Ethernet 10Gbit/s. Today also 40 and 100 Gigabit Ethernet solutions are commercially available with data rates of 40Gbit/s and 100Gbit/s, respectively.

F

Fronthaul
Umbrella term for transmission solutions in mobile broadband networks that connect baseband units with remote radio heads.

FSE (Frankfurt stock exchange)
Main stock exchange in Germany, where ADVA is listed

FSP (Fiber Service Platform)
The Fiber Service Platform is ADVA's comprehensive product portfolio that provides carriers and enterprises with innovative connectivity solutions for access, metro and long-haul networks.

FTTx (fiber-to-the-x)
FTTx is an umbrella term for fiber-based access networks, where x defines the end point of the fiber network. One example is FTTC (fiber-to-the-curb) where the fiber network is terminated in a street cabinet (at the curb) and the remaining distance to the end user is bridged by some other – in most cases existing – media, such as copper. Many network operators see FTTH (fiber-to-the-home) as the ultimate solution. In a FTTH scenario the fiber is deployed all the way to individual homes.

G

Gbit/s or G (Gigabit per second)
Bits are binary symbols of zero or one and are the standard unit by which data is stored and processed by computers. "Giga" stands for one billion (1,000,000,000). Bit/s is the basic unit of a data rate, which describes how many bits per second are being transmitted. One Gbit/s or G is therefore a data rate that transmits one billion bits of data per second.

GNSS (global navigation satellite system)
GNSS refers to a constellation of satellites transmitting positioning and timing data from space. GNSS receivers determine their location by using that data. By definition, a GNSS provides global coverage.

I

ICP (internet content provider)
Internet content providers are entities whose primary business is the creation, storage and dissemination of digital information. ICPs are also commonly referred to as over-the-top (OTT), web 2.0 and digital media companies.

IP (internet protocol)
IP is a packet-based method by which data is sent from one computer to another on the Internet.

ISO 14001 and ISO 22301
ISO 14001 is a standard developed and published by the International Organization for Standardization. This standard defines, establishes and maintains an environmental management system for the manufacturing and service industries. 22301 describes a standard for business continuity management.

L

LAN (local area network)
A LAN is a computer network covering a small physical area, like an office or small group of buildings. There are several technologies available for setting up a LAN. Today, Ethernet is the most commonly used technology in LAN environments. See also Ethernet.

LTE (long term evolution) / LTE-Advanced / LTE-TDD
LTE is the project name of a high-performance air interface for cellular mobile communication systems. It is often used as the synonym for the 4th generation (4G) of radio technologies designed to increase the capacity and speed of mobile networks. LTE-Advanced provides further enhancements to the LTE technology, enabling operators to deliver even more bandwidth to more mobile users. The TDD (time division duplex) version of the standard uses a single frequency for uploading and downloading data, alternating between the two through time.

M

MANO (management and orchestration)
Framework for the management and orchestration of all resources in a virtualized cloud environment.

Mbit/s (Megabit per second)
Bits are binary symbols of zero or one and are the standard unit by which data is stored and processed by computers. "Mega" stands for one million (1,000,000). Bit/s is the basic unit of a data rate, which describes how many bits per second are being transmitted. One Mbit/s is therefore a data rate that transmits one million bits of data per second.

MSO (multiple service operator)
The term MSO emerged in the 1990s when cable television companies, mainly in the U.S., started to offer telecom services in addition to their traditional television and video offerings. Technically, most telecom service providers today could be called multiservice operators, but the term MSO still implies the historical roots in the cable television space.

N

NFV (network functions virtualization)
NFV is an alternative design approach for building complex IT applications, particularly in the telecommunications and service provider industries. NFV virtualizes entire classes of functions into building blocks that may be connected, or chained, together to create services. With the introduction of NFV the architecture of service provider networks will change. Functions that were previously tied to a particular network element can now hosted centrally leading to a new distribution of hardware and software functionality across networks.

NTP (network timing protocol)
NTP is a networking protocol for clock synchronization between computer systems over packet-switched, variable-latency data networks.

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O

OEM (original equipment manufacturer)
OEM partners purchase products from other companies to fill gaps in their portfolio and offer an end-to-end solution. They typically re-label and market the products under their own brand name.

P

PLM (product line management)
PLM is a business term to describe the orchestration of activities that contribute to the output of a product line. In ADVA, product line managers are part of the CTO organization and have authority over a particular product line.

Protocol
A protocol defines the "language" elements that networks use to communicate with each other.

PTP grandmaster
The Precision Time Protocol (PTP) is a protocol used to synchronize clocks throughout a network. The grandmaster is a reference point that delivers precise synchronization. See also: IEEE 1588v2 Mini-Grandmaster Clock.

R

Rack unit (RU)
A rack unit describes the height dimension of electronic equipment designed to mount in a standard rack. One rack unit is 1.75 inches (44.45 mm) high.

RAN (radio access network)
The RAN is part of a mobile telecommunication system connecting a mobile communication device such as a mobile phone or smart phone via an air interface to the network of the communication service provider. The most current RAN technology is LTE, a high-speed and low-latency RAN for mobile broadband services. See also LTE (Long Term Evolution) / LTE-Advanced.

ROADM (reconfigurable optical add/drop multiplexer)
ROADM is an innovative functionality in optical networks that enables cost-effective switching of wavelengths.

S

SDN (software-defined networking)
SDN is an approach to building networks where the control function is separated from the forwarding engine. I.e., SDN decouples the system that makes decisions about where traffic is sent from the underlying hardware that forwards traffic to the selected destination. SDN has the potential to be disruptive to the networking industry and is seen as a key enabler on the road to network virtualization.

SFP (small form-factor pluggable)
The SFP is a standardized, compact, pluggable transceiver used for both telecommunication and data communications applications.

SmartWAN
ADVA term created to describe for set of functionalities that allows the intelligent use of available wide area networking resources.

SSU (synchronization supply unit)
Many services running on digital telecommunication networks require accurate synchronization for correct operation. Telecommunication networks rely on the use of highly accurate primary reference clocks (see also Cesium Clocks), which are distributed network wide using synchronization links and synchronization supply units.

T

TL 9000
TL 9000 is a quality management system standard defined specifically for the telecommunications industry. It standardizes the quality system requirements for the design, development, delivery, installation and maintenance of telecommunication products and services, and it also defines the performance metrics required to measure the situation at the time of the implementation of the standard as well as progress made.

Triple play services
Triple play services refer to bundled offerings of data, voice and video services to end customers. These services are offered in a bundle of three, and may include Internet and e-mail access, Internet telephony, Internet television and video-on-demand.

V

VAR (value added reseller)
VAR partners combine products from a number of different vendors together with their own services to offer customers a complete and comprehensive solution.

VNF (virtual network function)
Implementation of a network function using software that is decoupled from the underlying hardware.

vCPE (virtual customer premise equipment)
A CPE is a terminal unit located at a subscriber's premises and connected with a carrier's telecommunication network. The CPE provides demarcation functionality between the network domains of the service provider and his client (see also ProNID). In the context of NFV, certain functions of the CPE can be virtualized and hosted centrally in the service provider network. This software package defining the CPE function is called virtual CPE (vCPE).

W

WDM (wavelength division multiplexing)
WDM expands the capacity of networks by allowing a greater number of signals to be transmitted over a single fiber. WDM enables numerous channels of data to be multiplexed into unique color bands, and then to be combined and transmitted over a single fiber and de-multiplexed at the other end.

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Corporate information

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ADVA Optical Networking on the web

More information about ADVA, including solutions, technologies and products, can be found on the company's website at www.advaoptical.com.

PDF files of this annual report, as well as quarterly reports, presentations and general investor information, are also located on the company's website and can be downloaded in both English and German. Quarterly conference calls are conducted on the day of earnings announcements. Related PDF, audio and transcript files are available for download in the investor relations section of the group's website, www.advaoptical.com

Auditor

- PricewaterhouseCoopers GmbH
  Wirtschaftsprüfungsgesellschaft, Munich, Germany

Legal counsels

- Hogan Lovells, Munich, Germany

Tax advisers

- Deloitte, Munich, Germany

Financial calendar 2018

April 26, 2018 Martinsried/Munich, Germany	Publication of Three-Month Report 2018
June 13, 2018 Meiningen, Germany	Annual Shareholders' Meeting
July 19, 2018 Martinsried/Munich, Germany	Publication of Six-Month Report 2018
Oktober 25, 2018 Martinsried/Munich, Germany	Publication of Nine-Month Report 2018